Annual Report: Cultural Resources Survey and Evaluation Fort Wainwright Alaska 2009

March 2010

Annual Report: Cultural Resources Survey and Evaluation Fort Wainwright, Alaska 2009

By

Edmund P. Gaines, M.A., R.P.A, Kate S. Yeske, B.A., and Sarah J. McGowan, M.A.

Prepared by:
Center for Environmental Management of Military Lands
Colorado State University
Ft. Collins, CO 80523-1500

Lisa Graham
Conservation Branch
Directorate of Public Works
U.S. Army Garrison Fort Wainwright
Fort Wainwright, AK

ACKNOWLEDGEMENTS

The successful completion of the 2009 season was only made possible by field personnel who contributed valuable labor and expertise to these efforts. Working in remote areas of the Tanana Valley presents its own brand of hardships and adversity. The 2009 crew bravely endured deep swamps, hordes of mosquitoes, never-ending deadfall, a "fluid and dynamic" schedule, sprained ankles, delayed planes, smoky skies, bears thrashing camp, and mysteriously disappearing oatmeal in what they began to refer to as field "ordeals." That they continued to discover archaeological sites and collect high-quality data through it all is a testament to their work ethic, tenacity and professionalism. With the deepest appreciation, we graciously thank:

Kate Yeske
Sarah McGowan
Maureen Howard
Jim Quinn
Dave Cory
Malissa Fellman
Whitney McLaren
Kyle Johnson
Hayley Brown
Tim Marshall
Jim Kunesh

Many of these folks proved time and time again that they have that mysterious, indefinable good luck that enables them to find sites in extremely difficult terrain. Hunter-gatherers such as those that inhabited Alaska during prehistoric times wasted nothing and left precious few remains behind on the landscape. Given this fact, along with several thousand years of decay, and the thick vegetation and geologic conditions that characterize Alaska today, I am always amazed that we find archaeological sites at all up here. "Site-finder" is one of the highest compliments I can bestow upon a field archaeologist, and I am proud to say that there are many among the 2009 crew who deserve this label.

A special mention is due to Kate Yeske. In addition to serving as field crew leader on many of the surveys reported here, Kate stuck around through the cold, dark days of winter and was instrumental in data management, lithic analysis, digitizing data and preparing figures. This report would not have been completed without her help.

We also thank Chris Houlette for his assistance with elemental analysis of the obsidian artifacts recovered during 2009.

List of Acronyms

AHRS – Alaska Heritage Resource Survey
ANC – Anchorage
APE – Area of Potential Effect
ARPA – Archaeological Resources Protection Act
ATV – All Terrain Vehicles
BP – Years before Present
CEMML – Center for Environmental Management of Military Lands
CM-Centimeter
cm BS – Centimeters below Surface
CMT – Culturally Modified Tree
DEM – Digital Elevation Model
DTA – Donnelly Training Area
FAI – Fairbanks
FP – Firing Point
FRA – Fort Richardson
FS – Field Sample
FWA – Fort Wainwright
ICRMP – Integrated Cultural Resources Management Plan
ITAM – Integrated Training Area Management
LA-ICP-MS – laser ablation inductively coupled plasma mass spectrometry
M – Meter
mm – Millimeter
MASL – m above Sea Level
MOUT –Military Operations on Urban Terrain
MRE – Meal-Ready-to-Eat
NHPA – National Historic Preservation Act
NRHP – National Register of Historic Places
SFAC – Soldier Family Assistance Center
SHPO – State Historic Preservation Officer
TARP – Training Area Restoration Plan
TFTA – Tanana Flats Training Area
UAC – Urban Assault Course
USAG – U. S. Army Garrison
USARAK – U. S. Army Alaska
USARAL – U. S. Army Alaska (historic)
USGS – U. S. Geological Survey
UTM – Universal Transverse Mercator
UXO – Unexploded Ordinance
WT – Warrior in Transition
XRF – X-ray fluorescence
XBD – Big Delta
XMH – Mt. Hayes
YTA – Yukon Training Area

Table of Contents

Table of Figures

List of Tables

1.0 INTRODUCTION

In 2009, the U.S. Army Garrison Fort Wainwright (USAG FWA) initiated numerous projects that triggered Section 106 (NHPA) archaeological and cultural resource analyses and surveys of proposed project areas. This report details each undertaking for which archaeological fieldwork was completed at Fort Wainwright (FWA).

Survey and subsurface testing was conducted following procedures defined in USAG FWA's Integrated Cultural Resources Management Plan (ICRMP 2002). Where archaeological sites were identified within a project's area of potential effect (APE), evaluative testing was conducted to determine eligibility for listing in the National Register of Historic Places, based on National Register Criteria detailed in 36 CFR 60.4, and pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations (36 CFR 800).

Archaeological field crews, comprised of employees of Colorado State University, Center for Environmental Management of Military Lands (CEMML), conducted surveys of areas potentially impacted (both directly and indirectly) by proposed undertakings. One crew comprised of three to five archaeologists, conducted fieldwork at FWA's training areas.

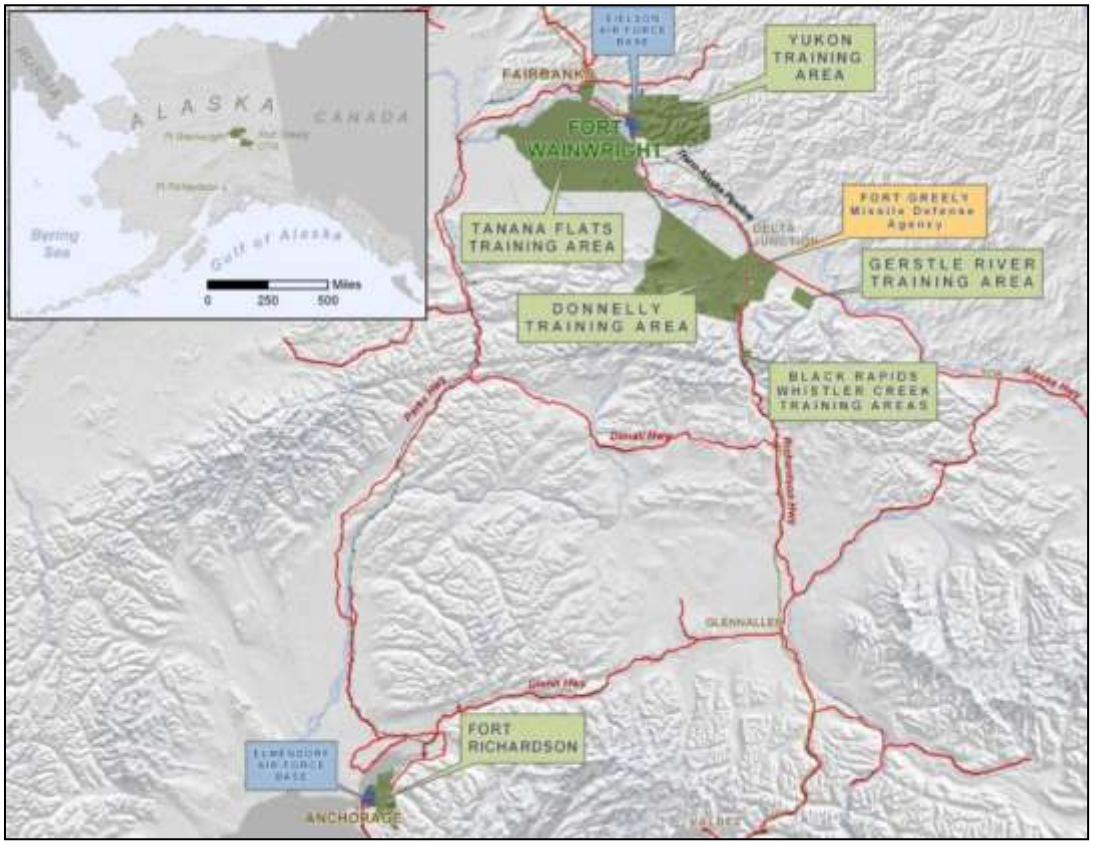

Figure 1. Location of Fort Wainwright, Alaska

2.0 FORT WAINWRIGHT (FWA)

FWA consists of the main post cantonment area and associated training lands (Figure 1), which include three main areas: the Yukon Training Area (YTA); the Tanana Flats Training Area (TFTA); and the Donnelly Training Area (DTA). During the 2009 field season, CEMML conducted Section 106 (NHPA) archaeological surveys on FWA's cantonment area for four development projects: (1) paving of river road on the north bank of the Chena river; (2) the construction of a Stryker vehicle wash facility; (3) construction of an RV parks; and (4) establishment of an Off-Road Vehicle (ORV) course. Additional surveys were also performed for range development projects at the YTA and TFTA. The results of these efforts will be presented in Sections 4 and 5 of this report. Five Section 106 projects conducted during 2009 at the DTA will be reported in a separate document (Robertson et al. 2010).

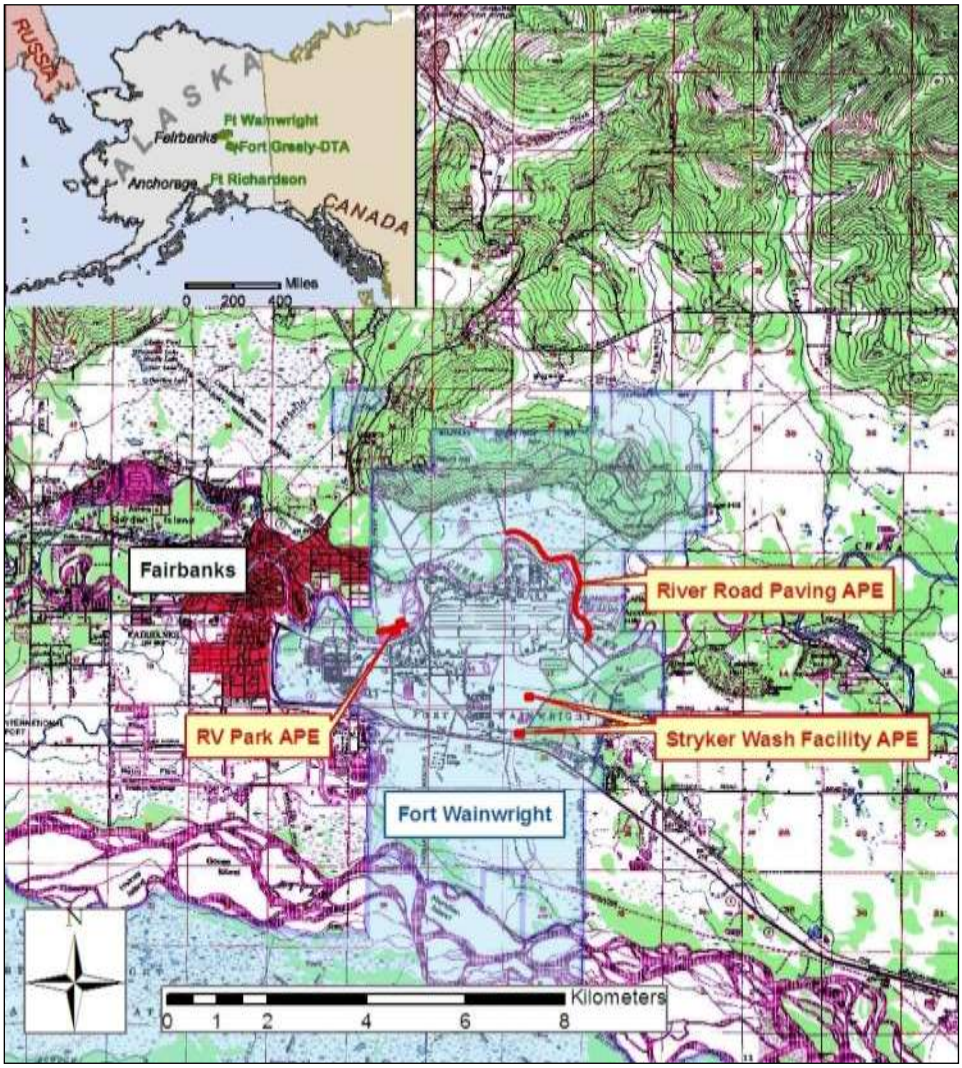

Figure 2. APEs for undertakings within FWA's cantonment

Setting & Environment

FWA is located in central Alaska, north of the Alaska Range in the Tanana River valley. The Post lies 120 miles south of the Arctic Circle near the cities of Fairbanks and North Pole in the Fairbanks North Star Borough. FWA has the northern continental climate of the Alaskan interior, characterized by short, moderate summers, long, cold winters and little precipitation or humidity. Average monthly temperatures in Fairbanks range from –11.5° F in January to 61.5° F in July, with an average annual temperature of 26.3°F. The record low temperature is -66° F and the record high is 98° F. Average annual precipitation is 10.4", most of which falls as rain during summer and early fall. Average annual snowfall is 67", with a record high of 168" during the winter of 1970-71 (Natural Resources Branch 2002).

Prehistoric Background

Traditional chronologies of Alaskan prehistory divide time into periods based on tool forms. Because of the almost continuous flux involved with the many subcategories of an Alaskan prehistory, the following discussion will entail the broadest classification scheme that divides Alaskan prehistory into three traditions: the American Paleoarctic Tradition, the Northern Archaic Tradition and the Athabaskan Tradition.

- ***The American Paleoarctic Tradition (12,400-7,000 years BP)***

The American Paleoarctic Tradition was originally defined by Anderson (1970) as the earliest microblade-using tradition in the American arctic, with a proposed relationship to Northeast Asian late Pleistocene cultures based on similarities in these distinctive artifact types. The term is now generally used by archaeologists to refer to the earliest archaeological cultures known from Alaska. In interior Alaska, this tradition includes several proposed complexes or subdivisions including the Nenana Complex and the Denali Complex.

The Nenana Complex was identified by Powers and Hoffecker (1989) from sites in the Nenana Valley. This complex is dated at approximately 11,000 years BP with an artifact assemblage that includes triangular or teardrop-shape bifacial projectile points ("Chindadn" points), large unifacial chopper-like tools, and flake tools. The Nenana Complex is defined as lacking microblades, microblade cores or burins, and was proposed as predating the Denali Complex, which has a major focus on these types of tools. In the Tanana Valley, Cook termed sites with distinctive triangular points as "Chindadn" sites and dated them at 11,000-10,000 years BP (Cook 1969, 1975; Holmes and Cook 1999).

The Denali Complex, dated at 10,500 to 8,000 years BP, was originally defined by West (1967) and includes distinctive microblade cores, core tablets and their derivative microblades, large blades, biconvex bifacial knives, certain end-scraper forms and burins. West (1981) later defined the Denali Complex as a regional variant of the American Paleoarctic Tradition.

The relationship between the proposed Nenana and Denali complexes is currently unresolved. Contrary to previous interpretations, current research (e.g. Holmes 1998; 2007; 2008) suggests that microblades and burins were used by the earliest known cultures in Interior Alaska, around 12,000-12,600 years BP, with a later co-occurrence with Chindadn points, the defining artifact type of the Nenana complex.

- ***The Northern Archaic Tradition (6,000-2,000 BP)***
  The hallmark of the Northern Archaic Tradition is the presence of side-notched projectile points (Anderson 1968; Workman 1978). Some researchers (e.g. Anderson 1968; Dixon 1985) correlate the advent of Northern Archaic technologies, represented by the widespread occurrence of side-notched points throughout interior Alaska and northwest Canada, with the establishment of the taiga forest. Generalized similarities between northern side-notched points and point styles associated with middle- to late- Holocene age complexes known from more southern areas of North America, has led to comparisons of Northern Archaic technologies to those of forest-oriented Archaic cultures of the lower 48 states (Anderson 1968). However, it is uncertain that any of the Northern Archaic traits, other than the side-notched points, originated outside of the western subarctic region (Clark 1992). It also is questionable whether the diffusion of a single trait constitutes an archaeological tradition (Cook and Gillespie 1986).

  Utilization of microblade and burin-based industries appears to continue through the middle and late Holocene. An intermediary period known as the Late Denali Complex, during which microblades reappeared, was once suggested (e.g. Holmes 1978; Dixon 1985) as occurring after the Northern Archaic Tradition. However, with the co-occurrence of microblades, microblade cores, and burins in site assemblages with side-notched points, it appears that the Northern Archaic Tradition includes these distinctive artifact types and that the Northern Archaic and American Paleoarctic may be related (Esdale 2007; Potter 2004).

- ***The Athabaskan Tradition (2,000 BP-1880 AD)***
  The Athabaskan Tradition includes late prehistoric and proto-historic cultures generally believed to be the ancestors of Athabaskan tribes who currently inhabit Interior Alaska. Excavated Athabaskan sites are rare; however the limited body of evidence allows for several generalizations. The Athabaskan Tradition includes a reorganization of raw materials, which de-emphasized stone tool making and increased the emphasis on the manufacture of items from native copper and organic materials (Dixon 1985). Assemblages include ground and pecked stone artifacts and an increased use of expedient tools. There was a broadening and diversification of the resource base to include small mammal and freshwater marine animals such as fish and mollusks (Mcfadyen Clark 1981; 1996; Ream 1986; Sheppard 2001; Shinkwin 1979). Athabaskan sites tend to occur in resource-rich areas near lakes, stream and rivers, and are generally characterized by large house-pit and cache pit features. Proto-historic Athabaskan assemblages include Euroamerican trade goods such as glass beads and iron implements. Sites of this time period reflect the increased reliance on outside trade and include log cabins co-occurring with traditional house pits, as well as a change in site location to maximize trading opportunities (Andrews 1975; 1977; 1987; McFadyen Clark 1981; VanStone and Goddard 1981).

Historic Background

FWA's training lands fall within an area occupied at the time of Euro-American contact by Lower-Middle Tanana Athabaskans, including 'bands' described generally as the Salcha, Big Delta-Goodpaster, Wood River and Chena bands (McKennan 1981; Andrews 1975; Mischler 1986). Historical accounts document traditional settlement patterns that were focused on a

widely mobile seasonal round, with the fall caribou hunt playing a pivotal role in subsistence preparations for the winter, and summer activities focused at fish camps, in berry and root collecting, and sheep hunting (McKennan 1981). These activities were frequently communal, with several local 'bands' connected by common interest, geography and intermarriage. Despite anthropological attempts to define 'boundaries' for the peoples living in the lower Tanana River valley, natural terrain served as the only definable 'boundary' to settlement patterns (McKennan 1981).

As Euro-American traders, miners, missionaries and explorers moved into the Tanana River valley, the traditional life ways of local Athabaskan groups were disrupted. Access to trade goods and the development of the fur trade not only affected traditional material culture but also began to dramatically affect subsistence activities and settlement patterns. Similarly, the arrival of missionaries in the Alaskan interior profoundly affected traditional social organization. The introduction of mission schools for Native children and the doctrine of new religious beliefs contributed to an erosion of traditional settlement patterns and practices (McKennan 1981).

In 1898, the discovery of gold in the Tanana uplands began a rush of Euro-American settlement into the Tanana River valley. As the economic importance of the Tanana Valley increased, the need for reliable transportation routes and communication systems rose in tandem. Existing trails, such as the Bonnifield, Donnelly-Washburn and Valdez-Fairbanks trails, saw increased use and development in the first decade of the 20th century. This increase in activity also resulted in the establishment of several roadhouses and posts. In 1906, Congressional appropriations led to improvement of the Valdez-Fairbanks trail, crossing the Alaska Range south of Delta Junction, following the Tanana River to Fairbanks. Completion of the Alaska Railroad in 1923 was followed two decades later by construction of the Alaska Highway in 1942, firmly tying the Alaskan interior to the outside.

As Fairbanks grew in the first decade of the 20th century, several agricultural homesteads were developed on lands now encompassed by sections of the FWA cantonment. These homesteads provided Fairbanks with a variety of agricultural products and wood for fuel, but were subsumed when lands were withdrawn for the creation of Ladd Field, which later became FWA (Price 2002).

Development in the Alaskan interior increased dramatically with the advent of World War II and subsequent military build-up in Alaska. Of particular significance was the development of airfields near Delta Junction (Fort Greely), Fairbanks (Ladd Field, later FWA) and 26 miles southeast of Fairbanks (Eielson Air Force Base). These locations began as Lend-Lease bases and cold weather testing centers, but soon expanded with the increased need for military support during World War II and later the Cold War.

Fort Wainwright Cultural Resources

Archaeological research on FWA's training areas has resulted in numerous technical reports (Bacon 1978; Bacon and Holmes 1979; Dixon et al. 1980; Frizzera 1973; Hedman et al. 2003; Higgs et al. 1999; Holmes 1979; Potter et al. 2000; Rabich and Reger 1978; Raymond-Yakoubian and Robertson 2005; Robertson et al. 2004; Robertson et al. 2006; Staley 1993), scientific papers (Holmes and Anderson 1986; West 1967, 1975), and the identification of over

500 prehistoric and historic archaeological sites. Work on FWA has been largely stratified sampling in nature, generally focusing on known recorded sites and areas thought to be of very highest potential for containing archaeological sites. Thus, while a large number of important sites have been identified on FWA training lands, a number of important gaps exist in the cultural resource inventory.

FWA's training lands have supported human populations for the past 10,000 to 12,000 years. The archaeological record known from FWA represents all of the currently recognized prehistoric cultures of the Alaskan Interior. Of particular significance is the role played by sites located on Army lands in the definition of the Denali Complex of the American Paleoarctic Tradition (Anderson 1970; West 1967, 1981). Though not located on Army lands, two of the oldest well-dated sites in North America—Swan Point and Broken Mammoth, dated to between 11,500 and 12,400 radiocarbon years before present (BP)—are located in the Tanana Valley less than 50 km south of the YTA (Holmes 1996, 1998; Holmes et al. 1996; Yesner et al. 1999). The oldest radiocarbon date for any item found on DTA is 9920+/-60 years BP (Beta-123331), from charcoal at site XBD-00167 (Higgs et al. 1999). Sites yielding Northern Archaic side-notched points are common (Robertson et al. 2004; 2005; Raymond-Yakoubien and Robertson 2005). At the DTA, site XMH-874 yielded an AMS date of 5720 +/- 50 BP from hearth charcoal associated with a microblade component (Robertson et al. 2008). A late prehistoric Athabaskan occupation is recognized at several sites (e.g. Andrews 1975, 1987; Cook 1989; Mishler 1986; Sheppard et al. 1991; Shinkwin 1979; Yarborough 1978). Of particular interest in this regard is a copper projectile point recently found in a buried context at the DTA (Roberston et al. 2009). Euro-American historic archaeological sites are also present (Gamza 1995; Phillips 1984).

2.1 RV Park Project

Undertaking

USAG FWA has proposed to construct a Recreational Vehicle Park on the north bank of the Chena River within the boundaries of FWA. Primary construction includes thirty campsites for trailers, motor homes and similar RVs, to include water, electrical, internet, and cable TV service to each site. Support facility requirements to establish these sites will include: clearing and grubbing of the site, the addition of gravel parking pads/access drives, and the construction of an additional campsite loop with a new access road approximately 12' in width x 300' in length. The proposed project's APE entails roughly 20 acres located on the north shore of the Chena River west of River Road (Figure 2, Figure 3). The APE is found on USGS topographic map Fairbanks D-2, N1/2 SEC 13, T1S, R1W, Fairbanks Meridian, centered roughly at UTM coordinates 0468804 E, 7190122 N.

Methods

In preparation for fieldwork, FWA's Cultural Resources staff reviewed topographic maps, detailed aerial photos, and available sources of historical, archaeological, geologic and ecological information pertinent to the project area. The Alaska Heritage Resource Survey (AHRS) database provided information on known cultural resources in the project area. Based on this archival research, the FWA Cultural Resources staff determined that there are no previously identified cultural resources within the proposed project's APE.

On June 2 and June 3, 2009, three Colorado State University, CEMML, archaeologists under the supervision of Edmund Gaines, M.A., R.P.A surveyed the proposed project APE. Visual survey coverage, consisting of parallel pedestrian transects spaced at 10-20 m, covered 100% of the APE. The team conducted subsurface testing in areas of higher site probability in undisturbed portions along the banks of the Chena River. Subsurface testing consisted of 11 shovel test pits excavated to either frozen ground or maximum depth possible and screened through ¼" mesh.

Results

No significant cultural resources were identified within the proposed project area APE. The APE appears to generally have a low probability for cultural resources due to extensive ground disturbance resulting from past construction, military training activities and flooding from the Chena River. The spit into the Chena River (Figure 4) appears to have been constructed of riprap. The APE is largely populated disturbance vegetation, including wild rose thickets, alder, willow, cottonwood, bluebells, and fire weed (Figure 4; Figure 5). Survey of the APE between River Road and the existing gravel entrance road revealed large blocks of concrete, roughly 1m thick along with twisted rebar, and wooden debris. In addition, the APE contains several abandoned roads and associated push piles, and metal drums. Test pits revealed that the underlying stratigraphy consists of massive alluvial sands and silts (Figure 6).

Summary and Recommendations

USAG FWA determined that no historic properties will be affected by the proposed undertaking. Based on the results of field observations and archival research, there is no reason to believe that the proposed construction of an RV Park warrants any further fieldwork or consideration under Section 106 of the NHPA (16 USC § 470, as amended 2000), and regulations codified in 36 CFR

800 (as amended 2004). No cultural resources were noted or discovered within the project APE. This project is located outside of the boundaries and the view sheds of the NHL and HD. The RV Park will be located north of the Chena River and the existing tree line along the bank of the river will be maintained, so there is no potential for a visual effect to either the NHL or the HD. No indications of burials or other human remains were observed within the surveyed area; therefore, barring an unforeseen discovery during the undertaking, there are no further considerations under the Native American Graves Protection and Repatriation Act (25 U.S.C.§ 3001 *et seq*.).

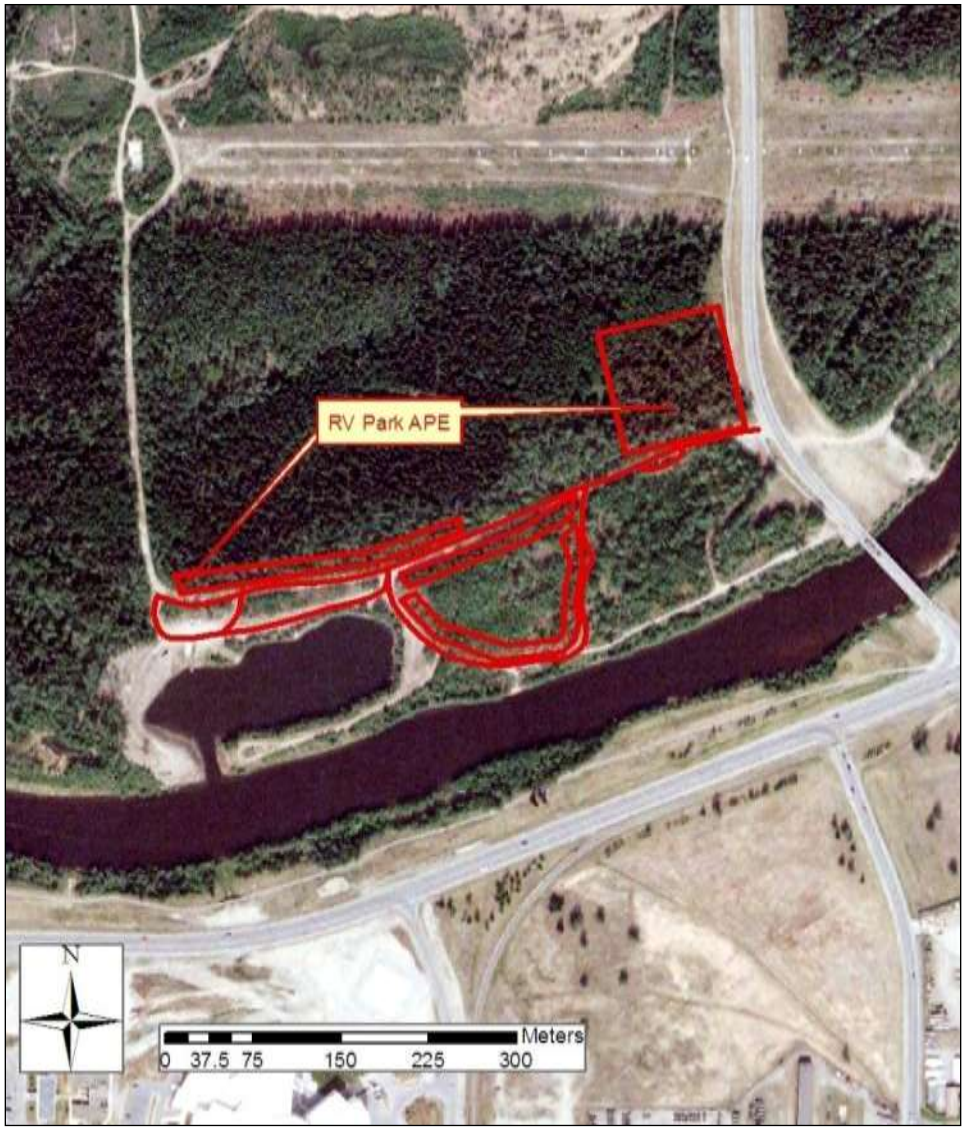

Figure 3. Proposed RV Park Project APE

Figure 4. General vegetation found on spit (view to north)

Figure 5. Vegetation and concrete blocks in proposed RV parking area

Figure 6. Test pit stratigraphy

2.2 Stryker Wash Facility Project

Undertaking
USAG FWA has proposed to construct a Stryker Vehicle Wash facility in the eastern portion of the FWA cantonment area (Figure 2). The primary facilities include the wash facility with equipment lay down area for unit/vehicle/ personnel equipment and Organizational Vehicle Parking. The proposed project will also include constructing information systems, energy monitoring, and control system connections to the installation central systems.

Supporting facilities include connection to all required utilities, utilidors with manholes, exterior lighting, walks, curbs, gutters, parking, erosion control measures, information systems, site improvements, and fire protection. The proposed project will be located at one of two proposed locations (Figure 7) contingent upon analysis of feasibility, cost, and environmental impacts. The APE for either location A or location B entails roughly 3 acres. The APE for alternative A is found on USGS topographic map Fairbanks D-2, SW ¼ SEC 17, T1S, R1E, Fairbanks Meridian, centered at approximate UTM coordinate Zone 6N, 0471468 E, 7188816 N; the APE for alternative B is on USGS topographic map Fairbanks D-2, NW ¼ SEC 20, T1S, R1E, Fairbanks Meridian, centered at approximate UTM coordinates Zone 6N, 0471294 E, 71888072 N.

Methods
In preparation for fieldwork, FWA's Cultural Resources staff reviewed topographic maps, detailed aerial photos, and available sources of historical, archaeological, geologic and ecological information pertinent to the project area. The AHRS database provided information on known cultural resources in the project area. Based on this archival research, FWA's Cultural Resources staff determined that there are no previously identified cultural resources within the proposed project's APE.

On June 1, 2009, three Colorado State University, CEMML, archaeologists, under the supervision of Edmund Gaines, M.A., R.P.A., surveyed the two alternative locations for the proposed project. Visual survey coverage, consisting of parallel pedestrian transects spaced at 10-20 m, covered 100% of the APE. The team conducted subsurface testing in areas of higher site probability. Subsurface testing consisted of 3 shovel test pits excavated to the depth of bedrock or frozen ground and screened through ¼" mesh.

Results
No cultural resources were identified within the proposed project area APE for either alternative A or B (Figure 7). Both APEs appear to generally have a low probability for cultural resources due to extensive ground disturbance resulting from past construction and military training activities.

The APE of Alternative A is bordered on the north by a small gravel road, on the south by Rhineland Road, and on the west by an active construction area cleared of all vegetation. The APE of Alternative B is bordered on the north by Old Badger Road, on the south by the railroad line and on the west by a parking lot for building 3490. Both areas exhibited white spruce and

birch trees as well as disturbance vegetation, including alder, wild rose, Labrador tea and bluebells (Figure 8). Survey of the APEs revealed several abandoned dirt roads with associated push piles, recently cut stacked spruce logs and sawdust (Figure 9). One bark stripped bark-stripped birch tree was identified in the APE for Alternative B at UTM coordinates 0471437E, 7188118N (Figure 10). Subsurface testing in the vicinity of the bark-stripped birch yielded no cultural remains. Test pit stratigraphy at both APEs generally consists of silt overlying sandy silt followed by poorly sorted gravels encountered at depths ranging from 50 to 104 cm.

Summary and Recommendations

No cultural resources were discovered in the APE. In terms of the bark-stripped birch tree located in Alternative B, culturally modified trees (CMT) have come under increasing research recently, recognizing the significance of such trees in understanding Native and non-Native forest use (e.g. Mobley and Eldridge 1992; Mobley and Lewis 2009). However, previous research has largely focused on the Pacific Northwest, British Columbia, and Southeast Alaska, where CMT's are predominantly spruce, cedar, and hemlock (e.g. Stryd and Eldridge 1993; Mobley and Eldridge 1992; Mobley and Lewis 2009). CMT tree studies have thus been directed on a much different history of use and ecological environment than that of the paper birch trees that predominate the FWA area. Additionally, paper birch have a life span that rarely exceeds 100 years of age (Viereck et al. 1972), rendering the age and potential significance of bark-stripped trees problematic.

USAG FWA determined that no historic properties will be affected by the proposed undertaking. Based on the results of the field observations and archival research, there is no reason to believe that the proposed construction of a Stryker Wash Facility at either alternative locations warrants any further fieldwork or consideration under Section 106 of the NHPA (16 USC § 470, as amended 2000), and regulations codified in 36 CFR 800 (as amended 2004). The undertaking has been reviewed by FWA Architectural Historian Mary Shanks for potential effects on historic buildings and structures. Both of the alternative locations are outside of the boundaries and the view sheds of the NHL and HD. There are five buildings located in proximity to the proposed undertaking, all built within the last twenty years (buildings 3490 and 3492 built in 1990; 3494 and 3496 built in 1988; and 3498 built in 2005). All of these facilities are Vehicle Maintenance Facilities and do not possess exceptional significance. No indications of burials or other human remains were observed within the surveyed area; therefore, barring an unforeseen discovery during the undertaking, there are no further considerations expected under the Native American Graves Protection and Repatriation Act (25 U.S.C.§ 3001 *et seq*.).

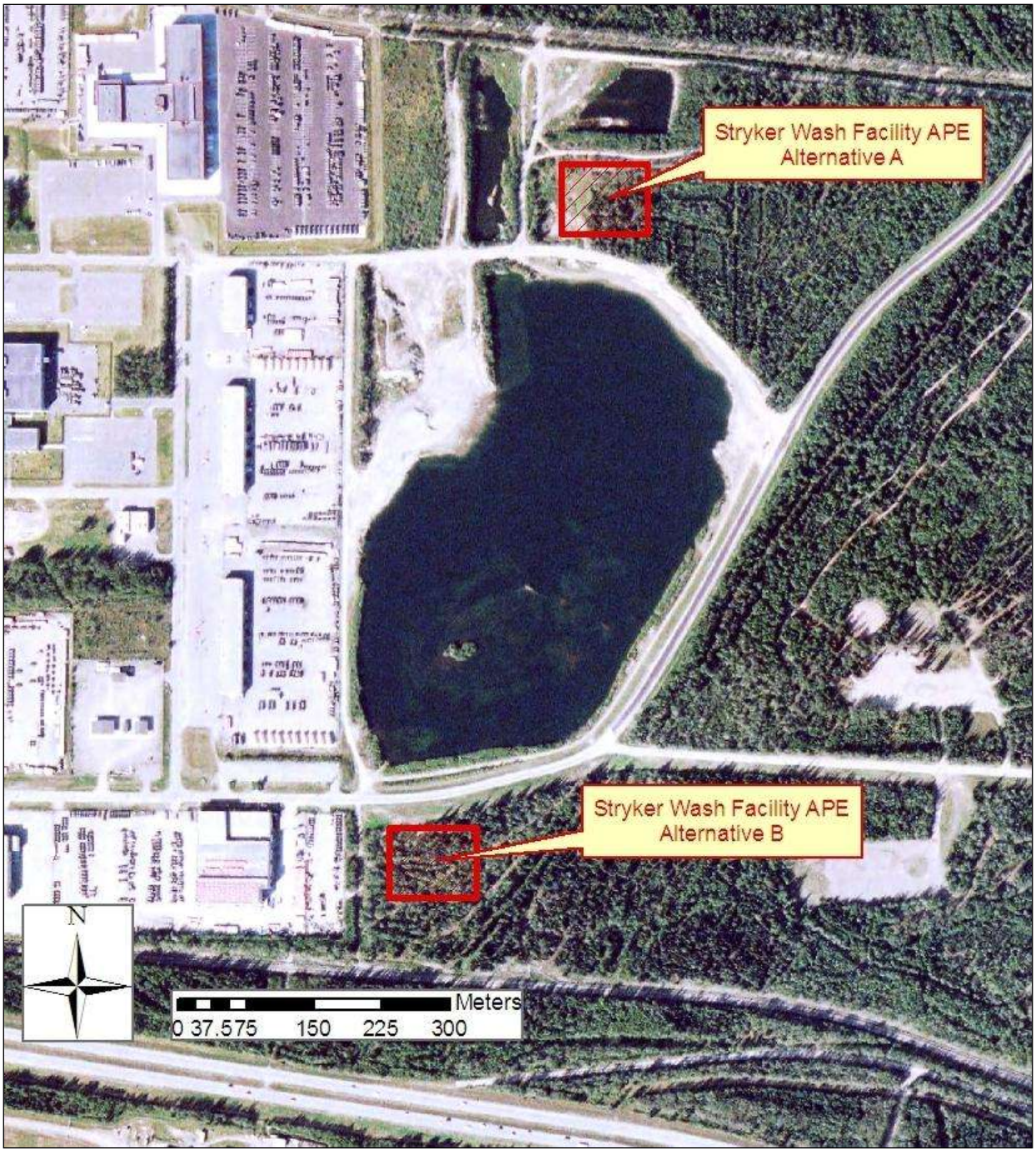

Figure 7. Proposed Stryker Wash Facility Project APE

Figure 8. Representative vegetation of both APEs (view to north)

Figure 9. Spruce logs and sawdust (view to north)

Figure 10. Bark-stripped birch tree

Figure 11. Test pit stratigraphy

2.3 River Road Paving Upgrades

Undertaking
USAG FWA has proposed to upgrade River Road on the north bank of the Chena River in the FWA cantonment area. The proposed project entails grading, compacting, paving, and striping River Road from the end of the pavement at Ski Road, 2.2 miles to just past Nautilus Road. The APE includes roughly 20 feet on either side of the existing road bed. The APE is found on USGS topographic map Fairbanks D-2, SW ¼ SEC 5; N1/2 SEC 8; E1/2 SEC 8 ; SW ¼ SEC 9; T1S, R1E, Fairbanks Meridian, beginning at approximate UTM coordinates Zone 6N, 0471028 E, 7192131 N, and ending at Zone 6N 0472722 E, 7190047 N.

Methods
In preparation for fieldwork, FWA's Cultural Resources staff reviewed topographic maps, detailed aerial photos, and available sources of historical, archaeological, geologic and ecological information pertinent to the project area. The AHRS database provided information on known cultural resources in the project area. Two previously recorded archaeological sites—FAI-00200 and FAI00509— are located in the vicinity of the APE.

On June 23 and June 25, 2009, three Colorado State University (CEMML) archaeologists surveyed the proposed project APE under the supervision of Edmund Gaines, M.A., R.P.A. Visual survey coverage, consisting of parallel pedestrian transects spaced at 10-20 m, covered 100% of the APE. The team conducted subsurface testing in areas of higher site probability. Subsurface testing consisted of 10 shovel test pits excavated either to the depth of bedrock or to maximum extent of shovel and screened through ¼" mesh.

Cultural Resources
The reported locations of sites FAI-00200 and FAI-00509 are in the vicinity of the APE. Site FAI-00200 was reported by Dixon et al (1980: 102-104) as a single side-notched projectile point discovered eroding out of the Chena River cut bank by a Soldier and brought to the UAF museum. Neither Dixon nor any of his crewmembers visited the site; however the reported location of the site is more than 100 m outside the proposed project's APE. During the course of the recent survey, the APE in the vicinity of site FAI-00200 was intensively tested; however, no cultural remains were identified.

Site FAI-00509 is reported in the AHRS database as three flakes found eroding out of a hillside gravel pit adjacent to River Road. At the time of initial discovery, the site was not tested. Hedman et al. (2002: 36-37) revisited the site, resurveyed the area around the gravel pit, and reported that the area had been heavily impacted by recent gravel removal, and bulldozer activity. Hedman et al. (2002: 36-37) did not identify additional cultural material, and reports that the site was destroyed by ground disturbance. During the course of the recent survey, the APE in the vicinity of site FAI-00509 was intensively tested; however, no cultural remains were identified, confirming Hedman et al.'s (2002: 36-37) report that the site has likely been destroyed.

Results
No cultural resources were identified within the proposed project's APE. The APE appears to generally have a low probability for cultural resources due to extensive ground disturbance resulting from past road construction and military training activities.

Extensive flooding from multiple events on the Chena River has also occurred in this area. Erosion near the north end of the APE provided a clear view of stratigraphy along the river bank (Figure 16). The revealed stratigraphy exhibits bedded alluvial silts and sands, with a series of buried soils. This sequence indicates periods of massive deposition, likely from flood activities, punctuated by periods of landscape stability and vegetation growth. Subsurface testing along the APE revealed a similar stratigraphic sequence.

Five bark-stripped birch trees were indentified within a 50 m x 50 m area, located 20 m east of the APE; Figure 15). An additional bark-stripped birch tree was indentified west of River Road, 10 m outside the APE (Figure 14). All of the bark-stripped birch trees identified during field survey are located outside the APE of the proposed project.

Summary and Recommendations
USAG FWA determined that no historic properties will be affected by the proposed undertaking. Based on the results of the field observations and archival research, there is no reason to believe that the proposed River Road paving upgrades warrant any further fieldwork or consideration under Section 106 of the NHPA (16 USC § 470, as amended 2000), and regulations codified in 36 CFR 800 (as amended 2004). The bark-stripped birch trees are located outside the project's APE; and the proposed project does not entail any felling of trees. The proposed project is located outside of the boundaries and the view sheds of the NHL and HD. No indications of burials or other human remains were observed within the surveyed area; therefore, barring an unforeseen discovery during the undertaking, there are no further considerations expected under the Native American Graves Protection and Repatriation Act (25 U.S.C.§ 3001 *et seq*.).

Figure 12. River Road APE (view to west)

Figure 13. View of the Chena River from River Road (view to west)

Figure 14. Bark-stripped birch tree

Figure 15. Barked-stripped birch tree

Figure 16. River cut bank stratigraphy

Figure 17. Test pit stratigraphy

2.4 Off-Road Vehicle Course

Undertaking
USAGFWA has proposed to establish an ORV course in Training Area 114 in the northwest area of FWA (

Figure 18). The purposes of this project are to address morale, welfare and recreation concerns of soldiers returning from deployment. Establishing an ORV course will provide an opportunity for soldiers to operate their personal off-road vehicles in a safe, controlled environment thus minimizing the potential for accidents. In addition, the course will enable soldiers to pursue ORV recreation activities in an established area, thereby minimizing impacts to the off-post community and environment resulting from unsanctioned ORV use in unauthorized locations.

The proposed project will consist of upgrading roughly 1.5 km of previously established trails in disturbed areas on Sage Hill, and creating new trails in ~25 acres of lowland areas to the south of Sage Hill. Trail upgrades on Sage Hill consist of placing large boulders and other heavy debris (e.g. concrete blocks, etc.) on the established trails and disturbed areas in order to provide obstacles over which drivers will articulate their vehicles. Trail construction in the lowland areas will consist of creating 25 foot wide dirt trails with dirt mounds, jumps, boulders and other obstacles. The APE of the proposed project is found on USGS Fairbanks D-2 topographic map, NW1/4, SW1/4 SEC 3, T1S, R1E, Fairbanks Meridian, roughly centered at UTM coordinates Zone 6N 0474846E/7192341N (NAD 83)

Methods
In preparation for fieldwork, we reviewed topographic maps, detailed aerial photos, and available sources of historical, archaeological, geologic and ecological information pertinent to the project area. The AHRS database provided information on known cultural resources in the project area.

Based on its topographic character, Sage Hill was considered to have high probability of containing prehistoric archaeological remains. Accordingly, we paid particularly close attention to this landform during the Section 106 process. Sage Hill was previously surveyed and cleared by Dixon et al. (1980: 80, 84). Although Dixon et al. (1980: 80) report that they conducted subsurface testing on this landform, they identified no cultural resources. Despite Dixon et al.'s (1980) reportedly negative results, we included Sage Hill in our comprehensive field survey efforts.

On June 4 and June 8, 2009, the proposed project APE was surveyed by three Colorado State University (CEMML) archaeologists, under the supervision of Edmund Gaines, M.A., R.P.A. Visual survey coverage, consisting of parallel pedestrian transects spaced at 10-20 m, included 100% of the APE. Subsurface testing was conducted in areas of higher site probability in undisturbed portions on the north and south slopes of Sage Hill. Subsurface testing consisted of

15 shovel test pits excavated to the depth of bedrock or frozen ground and screened through ¼" mesh.

Cultural Resources
There are no previously recorded cultural resources within the APE. There are four previously recorded prehistoric archaeological sites—FAI-00040; FAI-00041; FAI-0042; and FAI-0043—on the south slope of Birch Hill within 1.5 km to the west of the project area; however, these sites are more than 900 m away from the APE.

Results
One prehistoric site—FAI-01990—was discovered through subsurface testing of undisturbed areas on the south slope of Sage Hill. While in close proximity to trails and disturbed areas planned for improvements, there are no development activities associated with the proposed project planned within the boundaries of FAI-01990.

FAI-01990
Determination: unevaluated

Site FAI-01990 is located on the southern face of Sage Hill, a low bedrock knoll composed of Birch Creek schist and basalt intrusions that rises roughly 20 m from the surrounding terrain to an elevation of 175 masl. Site slope varies between 20º-40º. On its south slope, Sage Hill is very steep, with a 40º-60º slope dropping roughly 18 m to the lowlands below. The location offers a prominent view of a small lake fed by Columbia Creek and a muskeg and tussock swamp to the south. The viewshed from the site also includes Birch Hill to the northwest. Site vegetation consists of dense black spruce and aspen, with moss, sage and low shrub understory (Figure 23). Site elevation is 171-173 masl (meters above sea level).

Four test pits, of 15 excavated on Sage Hill, yielded nine subsurface flakes from depths of 1-35cm below surface (bs). These include: one flake made of translucent gray chert; two black chert flakes; two tan rhyolite flakes; two black basalt flakes; and two milky quartz flakes. Intact stratigraphy revealed in positive test pits consists of a 7cm thick black organic mat (O horizon), overlying dark yellowish brown (10YR 4/4 to 10YR 4/6) silt at 7-42cm below surface, which in turn overlies olive brown (2.5Y 4/4) sandy silt at 42-63 cm BS. The basal unit consists of light olive brown (2.5Y 5/4) sandy silt at depths of 63-94 cm BS. Excavations were ended at a maximum depth of 94 cmbs when angular gravels (decomposing bedrock) were encountered. Based on the distribution of positive test pits and extent of obviously undisturbed areas on the landform, site size is estimated at 65 m east-west x 23 m north-south.

Mechanical disturbance is widespread across Sage Hill in the vicinity of FAI-01990. Five acres at the top and southern slope of the hill have been mechanically cleared and leveled. This eliminated all vegetation and fine-grained sediment and left an exposed surface of highly-angular fragments of basalt and schist bedrock. It is important to note that the mechanically-fractured bedrock gravels resemble flakestone debitage to a certain extent; however, these "artifacts" are clearly the result of heavy equipment. Extensive berms and mechanical "push-piles" are evident in the northern areas of the hill. Numerous trails cross the landform. There is a well-worn dirt road running east-west across the hill, with less-worn trails extending through the vegetation to

the north. Additional signs of military use are scattered across the hill, including ammunition casings and several hasty defensive pits ("foxholes").

The mechanical clearing undoubtedly affected FAI-01990. It appears that most of the site has been lost; however, the extent of disturbance cannot be known for certain. The positive test pits are located in the very steep southern slope, an area unsuitable for habitation. The artifacts found here likely represent retooling associated with hunting lookouts, or redeposition (slope wash and colluvial movement) from primary contexts on the crest of the hill above. Two test pits yielded artifacts from an intact stratigraphic sequence described above. Two other positive test pits yielded artifacts from a disturbed context. The stratigraphy revealed in these pits consists of a mixed uniform brown (7.5YR 4/4) sandy silt from surface to bedrock around 35cm BS (Figure 25). The flat area at the top of landform—an area more likely to have significant densities of cultural material— is the location of the most extensive disturbance. FAI-01990's current boundaries are constrained by the extent mechanical clearance on the crest of the hill, and distribution of undisturbed vegetation and potentially intact stratigraphic deposits in the vicinity of the positive test pits.

Additional Findings

Two bark-stripped birch trees were identified. The bark on both trees has been completely stripped around the entire circumference. The first tree displays a scar 22 cm high (Figure 26); and the other has a scar 20 cm in height (Figure 27). Subsurface testing in the vicinity of these trees produced no cultural remains.

Summary and Recommendations

FAI-01990 is located in undisturbed portions of Sage Hill; however, the proposed project will be restricted to placing boulders and other debris only on disturbed portions or existing trails on the landform. The site's slope is too steep for any type of vehicular traffic; large birch and spruce trees growing on the site will further prevent inadvertent driving over the site's boundaries by ORV course users. However, as an additional site protection measure, USAG FWA has agreed to place signs indicating that the site area is "off-limits" to vehicular traffic.

The low, wet tussock swamp that constitutes the 25 acres in the southern portion of the APE produced no cultural materials and generally appears to have a very low probability for cultural resources.

In terms of the bark-stripped birch trees, CMTs have come under increasing research recently, recognizing the significance of such trees in understanding Native and non-Native forest use (e.g. Mobley and Eldridge 1992; Mobley and Lewis 2009). However, previous research has largely focused on the Pacific Northwest, British Columbia, and Southeast Alaska, where CMT's are predominantly spruce, cedar, and hemlock (e.g. Stryd and Eldridge 1993; Mobley and Eldridge 1992; Mobley and Lewis 2009). CMT tree studies have thus been directed on a much different history of use and ecological environment than that of the paper birch trees that predominate the FWA area. Additionally, paper birch have a life span that rarely exceeds 100 years of age (Viereck et al. 1972), rendering the age and potential significance of bark-stripped trees difficult to determine without further traditional use studies. No vegetation or tree removal activities are planned as part of the proposed project. The two bark-stripped birches are outside

the APE, which will be restricted to established trails. Thus, no adverse impacts from the proposed project will affect these trees.

Recommendations

USAG FWA determined that no historic properties will be affected by the proposed undertaking. Based on the results of our field observations and archival research, there is no reason to believe that establishing the proposed ORV course warrants any further fieldwork or consideration under Section 106 of the NHPA (16 USC § 470, as amended 2000), and regulations codified in 36 CFR 800 (as amended 2004). While FAI-01990 is in proximity to the proposed project, no cultural resources were noted or discovered within the project APE. USAG FWA will ensure no adverse affects to FAI-01990 by placing signs indicating that the site area is "off-limits" to vehicular traffic. No indications of burials or other human remains were observed within the surveyed area; therefore, barring an unforeseen discovery during the undertaking, there are no further considerations expected under the Native American Graves Protection and Repatriation Act (25 U.S.C.§ 3001 *et seq*.).

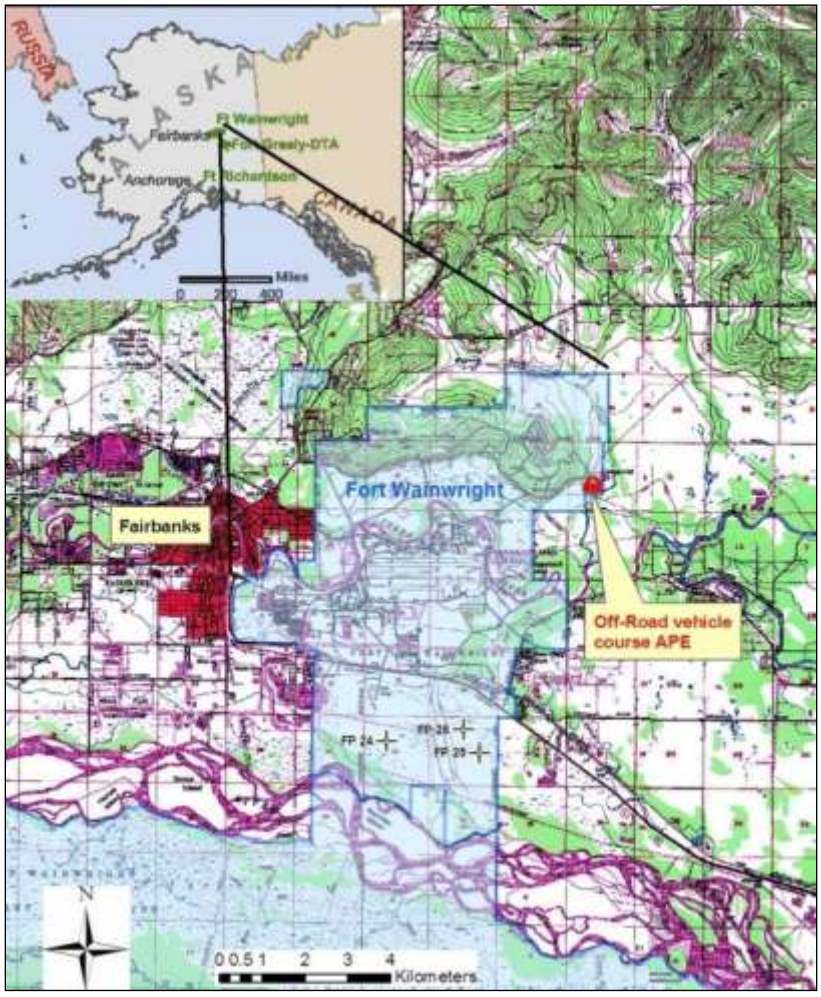

Figure 18. Location of Off-Road Vehicle (ORV) course APE

Figure 19. Trail and vegetation typical on northern portion of Sage Hill APE (view to north)

Figure 20. Southern portion of Sage Hill APE, boundary of disturbed areas and vegetation on south slope (view to west, note Birch Hill in the background)

Figure 21. Vegetation and environment typical of the ~25 acre southern APE (view to south)

Figure 22. Overview of disturbed areas on Sage Hill (view to east)

Figure 23. Overview of site FAI-01990 (note dense trees and steep slope, view to east)

Figure 24. FAI-01990 positive test pit exhibiting intact stratigraphy

Figure 25. FAI-01990 positive test pit exhibiting disturbed stratigraphy

Figure 26. Bark-stripped birch tree #1

Figure 27. Bark-stripped birch tree #2

3.0 YUKON TRAINING AREA (YTA)

The FWA YTA (Figure 1; Figure 28) consists of 249,552 acres within the western portion of the Yukon-Tanana Uplands section of the Northern Plateau physiographic province of Interior Alaska (Wahrhrftig 1965). This area is characterized by round even-topped, north-east to east trending ridges that rise roughly 150 to 450 m above adjacent valley floors to an elevation of 450-915 masl (meters above sea level). Bedrock is primarily composed of Precambrian Birch Creek schist, with few areas of granite and quartz diorite. Most of the YTA is covered by a thin (1-200 cm) mantle of micaceous aeolian silt (loess) derived from outwash plains south of the Tanana River (Muhs and Budhan 2006). Soils are typically well-drained brown silt loam associated with poorly drained silt loams in depressions and drainages (Natural Cooperative Soil Survey 1999).

The YTA is home to 15 known prehistoric sites, most of which were found by C.E. Holmes (1979), and CEMML archaeologists between 2002 to 2005 (Hedman et al. 2003; Raymond-Yakoubian 2004, Raymond-Yakoubian and Robertson 2005).

During the summer of 2009, two range development projects triggered Section 106 NHPA archaeological surveys at the YTA. These include: (1) survey of roughly 350 acres for gravel source development; and (2) survey of 1.3 acres for construction of a UAS support facility at the firebird Assault Strip. Additional survey efforts in the vicinity of Firing Point 8 identified one prehistoric archaeological site— XBD-00364.

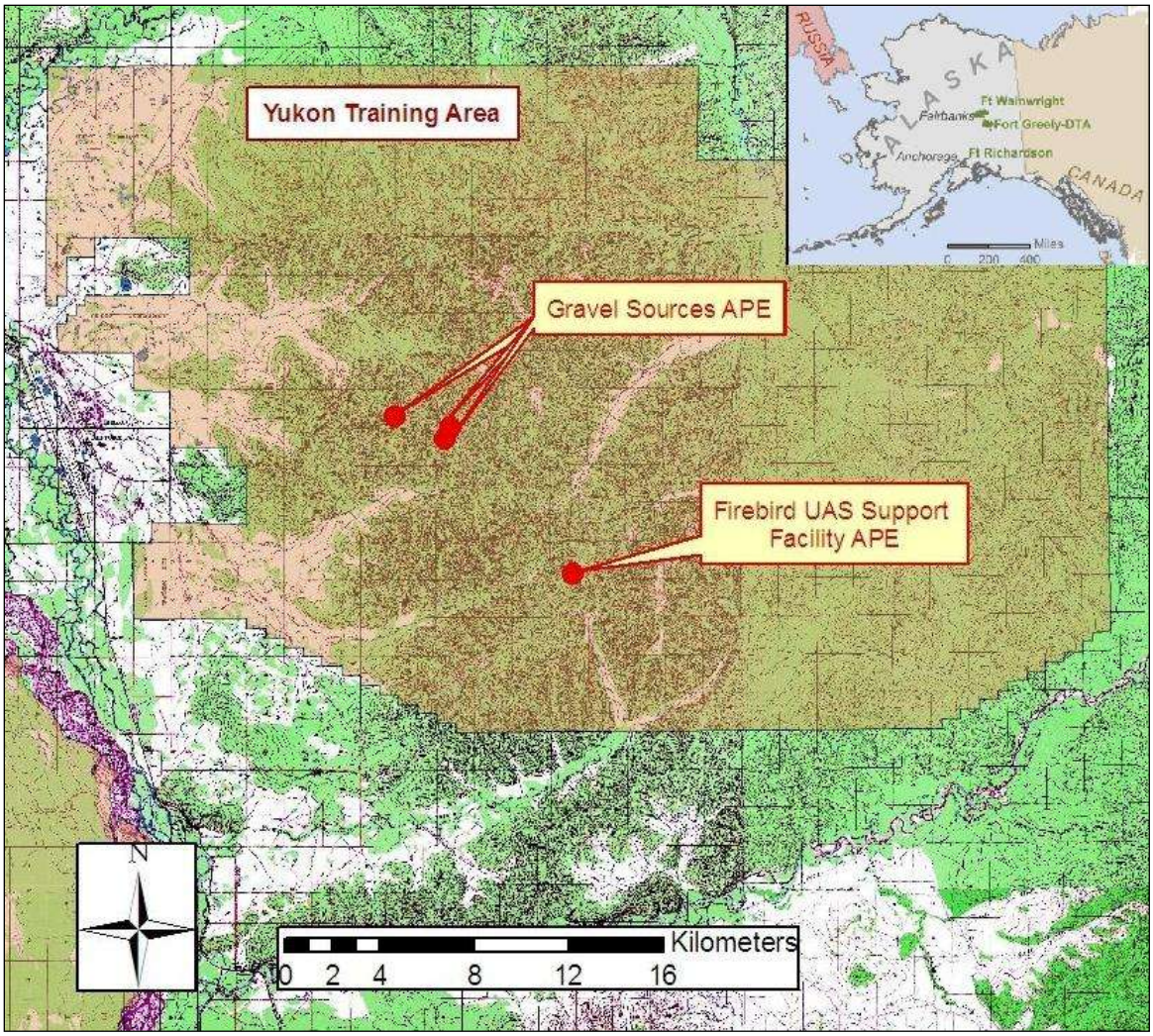

Figure 28. Location of proposed projects within YTA

3.1 Gravel Sources

Undertaking

USAG FWA has proposed to develop a gravel source in the YTA at one of three alternative locations (Figure 28. The APE for Alternative A consists of 63 acres found on USGS topographic map Big Delta C-6, S ½ SEC 4; N ½ SEC 9; T3S, R5E, Fairbanks Meridian, centered at approximate UTM coordinates Zone 6N, 511323 E, 7172409 N. The APE for Alternative B consist of 102 acres found on USGS topographic map Big Delta C-6, W ½ SEC 9; T3S, R5E, Fairbanks Meridian, centered at approximate UTM coordinates Zone 6N, 511389 E, 7171826 N. The APE for Alternative C consists of 114 acres found on USGS topographic map Big Delta C-6, SE ¼ SEC 6; SW ¼ SEC 5; T3S, R5E, Fairbanks Meridian, centered at approximate UTM coordinates Zone 6N, 509225 E, 7172792 N.

Methods

In preparation for fieldwork, FWA's Cultural Resources staff reviewed topographic maps, detailed aerial photos, and available sources of historical, archaeological, geologic and ecological information pertinent to the project area. The AHRS database provided information on known cultural resources in the project area. Based on this research, FWA's Cultural Resources staff determined that there is one archaeological site—XBD-00095—reported from within the APE of Alternative A.

On June 10, 11, 16-18, and 22, 2009, three Colorado State University, CEMML, archaeologists surveyed the proposed project APE under the supervision of Edmund Gaines, M.A., R.P.A. Visual survey coverage, consisting of parallel pedestrian transects spaced at 10-20 m, included 100% of the APE. The team conducted subsurface testing in areas of higher site probability. Subsurface testing consisted of 31 shovel test pits excavated to the depth of bedrock or frozen ground and screened through ¼" mesh.

Cultural Resources

Site XBD-00095 (Figure 29) was originally identified by Holmes (1979: 14-15), on the basis of two flakes found on the surface of a road bed in a quarry pit. The reported location of the site is within the boundaries of Alternative A. No further testing was conducted at the time of discovery and the report gives no indication as to the possibility of additional intact archaeological remains; however, it is clear that at the time of discovery, the flakes were located in disturbed areas of an existing quarry. The recent survey employed comprehensive efforts in the vicinity of the reported find; however, no additional cultural material was identified. Quarrying activities have removed much of the area to the depth of bedrock. The site area has been heavily disturbed, and if there were any additional materials, they have likely been destroyed by the extensive ground disturbance.

Results

No cultural resources were identified within any of the alternative locations for the proposed gravel source development. Alternative A is an existing quarry pit on the north side of Quarry Road. In addition to ground disturbance from quarrying activities, the area shows significant disturbance as a result of military training activities, including camping areas, a well-used improvised shooting range, scrap metal and several hasty defensive positions ("foxholes").

Areas deemed most likely to contain archaeological artifacts show the greatest disturbance. The steepest areas of the APE exhibiting slopes greater than 45° are the only areas that remain undisturbed.

Alternative B sits atop a north-south trending ridge that provides excellent views of the lower elevations to the west. There is heavy ground disturbance in the form of a wide, flat area of exposed bedrock and associated push piles (Figure 30). There is abundant evidence of modern military use consisting of a Green Star parachute canister, scattered 5.56 mm and 7.62 mm cartridge casings, and a star flare with deployed fins. There are also two hunting tree stands in a steep drainage on the southern portion of the APE. Much of the proposed APE, however, is evidently undisturbed with vegetation consisting of birch, aspen and white spruce, with a thick moss mat.

Sixteen test pits were excavated in Alternatives A and B. The majority of the test pits were excavated to frozen ground. Test pit stratigraphy typically consists of 10-20 cm of silt with very few coarse sand particles overlying poorly sorted gravel or decomposing schist bedrock. Soil development generally consists of a dark brown O horizon 10-13 cm thick, with dark brown silt A horizon at 13-15 cm BS, and a C horizon of yellowish silt at depths of up to 90 cm BS (Figure 33, Figure 34). All of the test pits were negative for cultural material.

Alternative C is located atop an east-west trending ridge with a steep slope dropping off on the north side. Vegetation is comprised of black spruce, sparse birch, with an understory of Labrador tea, wild rose and thick moss. Alternative C is bisected by an ATV trail running east-west (Figure 31), with an associated push pile and drainage ditch overgrown with alder.

In addition to the ATV trail, modern military activity is evidenced by several hasty defensive positions ("foxholes"), pits covered with branches and reinforced with burlap and stone, and recent fire pits at the top of the ridge and along the trail. Ten bark-stripped birch trees (Figure 32), and several trees with blaze marks, were identified throughout the area with a concentration in and around a large, heavily-used cleared area at the ATV trail. Two steel-jaw traps tied with parachute cord to standing trees were found along the ATV trail in the vicinity of the trees with blaze marks. Subsurface testing in the vicinity of the bark-stripped birch trees failed to identify any cultural materials.

Fifteen test pits were excavated in Alternative C, most of which we excavated to the depth of bedrock, which was encountered at depths of 30-100 cm. Typical test pit stratigraphy consists of silt with very-poorly sorted gravels and groess throughout. Soil development consists of a dark brown O horizon 0-5cm BS, a charcoal-rich black A horizon 5-10cm BS, a reddish silt B horizon 10-20 cm BS, and an underlying yellow silt C horizon directly overlying bedrock (Figure 35).

Summary and Recommendations

No cultural resources were located in the APE. In terms of the bark-stripped birch trees that were discovered in Alternative C, CMTs have come under increasing research recently, recognizing the significance of such trees in understanding Native and non-Native forest use (e.g. Mobley and Eldridge 1992; Mobley and Lewis 2009). However, previous research has largely focused on the Pacific Northwest, British Columbia, and Southeast Alaska, where CMTs

are predominantly spruce, cedar, and hemlock (e.g. Stryd and Eldridge 1993; Mobley and Eldridge 1992; Mobley and Lewis 2009). CMT studies have thus been directed on a much different history of use and ecological environment than that of the paper birch trees that predominate the YTA. Additionally, paper birch have a life span that rarely exceeds 100 years of age (Viereck et al. 1972), rendering the age and potential significance of bark-stripped trees difficult to determine without further traditional use studies.

USAG FWA determined that no historic properties will be affected by the proposed undertaking. Based on the results of the field observations and archival research, there is no reason to believe that development of a gravel source at any of the three alternatives warrants any further fieldwork or consideration under Section 106 of the NHPA (16 USC § 470, as amended 2000), and regulations codified in 36 CFR 800 (as amended 2004). No indications of burials or other human remains were observed within the surveyed area; therefore, barring an unforeseen discovery during the undertaking, there are no further considerations expected under the Native American Graves Protection and Repatriation Act (25 U.S.C.§ 3001 *et seq*.).

Figure 29. Overview of Gravel Source Alternative A, including reported location of site XBD-00095 (view to north)

Figure 30. Overview of Gravel Source Alternative B (view to north)

Figure 31. Trail bisecting Gravel Source Alternative C (view to west)

Figure 32. Example of bark-stripped birch tree at Alternative C

Figure 33. Alternative A test pit stratigraphy

Figure 34. Alternative B test pit stratigraphy

Figure 35. Alternative C test pit stratigraphy

3.2 Firebird UAS Support Facility Project

Undertaking
USAG FWA has proposed to construct a facility to support the Unmanned Aerial System (UAS) at the Firebird Assault Strip in the YTA. The proposed project will include construction of a 40 ft x 80 ft building. The proposed project is anticipated to impact approximately 1.3 acres of previously disturbed ground; however, a small amount of vegetation may be cleared to widen access to the site and a gravel area will be constructed to facilitate parking. The APE is found on USGS topographic map Big Delta C-6, SE 1/4 SEC 25; T3S, R5E, Fairbanks Meridian, centered at approximate UTM coordinates Zone 6N, 516699 E, 7166138 N.

Methods
In preparation for fieldwork, FWA's Cultural Resources staff reviewed topographic maps, detailed aerial photos, and available sources of historical, archaeological, geologic and ecological information pertinent to the project area. The AHRS database provided information on known cultural resources in the project area. Based on this research, FWA's Cultural Resources staff determined that there are two archaeological sites—XBD-00094 and XBD-00266 in the vicinity; however, their reported locations are more than 1.1 km to the north of the proposed project.

On June 18, 2009, three Colorado State University (CEMML) archaeologists, under the supervision of Edmund Gaines, M.A., R.P.A., surveyed the area being considered for the proposed project. Visual survey coverage, consisting of thorough examination of exposed ground surface, included 100% of the APE. The team conducted subsurface testing to gain insight into the stratigraphy of the APE. Subsurface testing consisted of 1 shovel test pit, excavated and screened through ¼" mesh.

Results
No cultural resources were identified within the proposed project area APE. The APE is flat and almost completely cleared of vegetation, with approximately 50 m x 60 m of exposed ground surface (Figure 37). Surrounding vegetation includes grasses and small shrubs, birch, aspen and spruce. Signs of recent use include piles of sandbags, wooden target stands, razor wire, scattered ammunition shells and large vehicle tire tracks. One shovel test revealed completely disturbed and mixed stratigraphy consisting of uniform brown silt with abundant granite and schist fragments and bits of plastic debris to a depth of 50 cm BS (Figure 38).

Summary and Recommendations
USAG FWA determined that no historic properties will be affected by the proposed construction of the UAS support facility. Based on the results of the field observations and archival research, there is no reason to believe that the proposed Firebird UAS support facility project warrants any further fieldwork or consideration under Section 106 of the NHPA (16 USC § 470, as amended 2000), and regulations codified in 36 CFR 800 (as amended 2004). No indications of burials or other human remains were observed within the surveyed area; therefore, barring an unforeseen discovery during the undertaking, there are no further considerations expected under the Native American Graves Protection and Repatriation Act (25 U.S.C.§ 3001 *et seq*.).

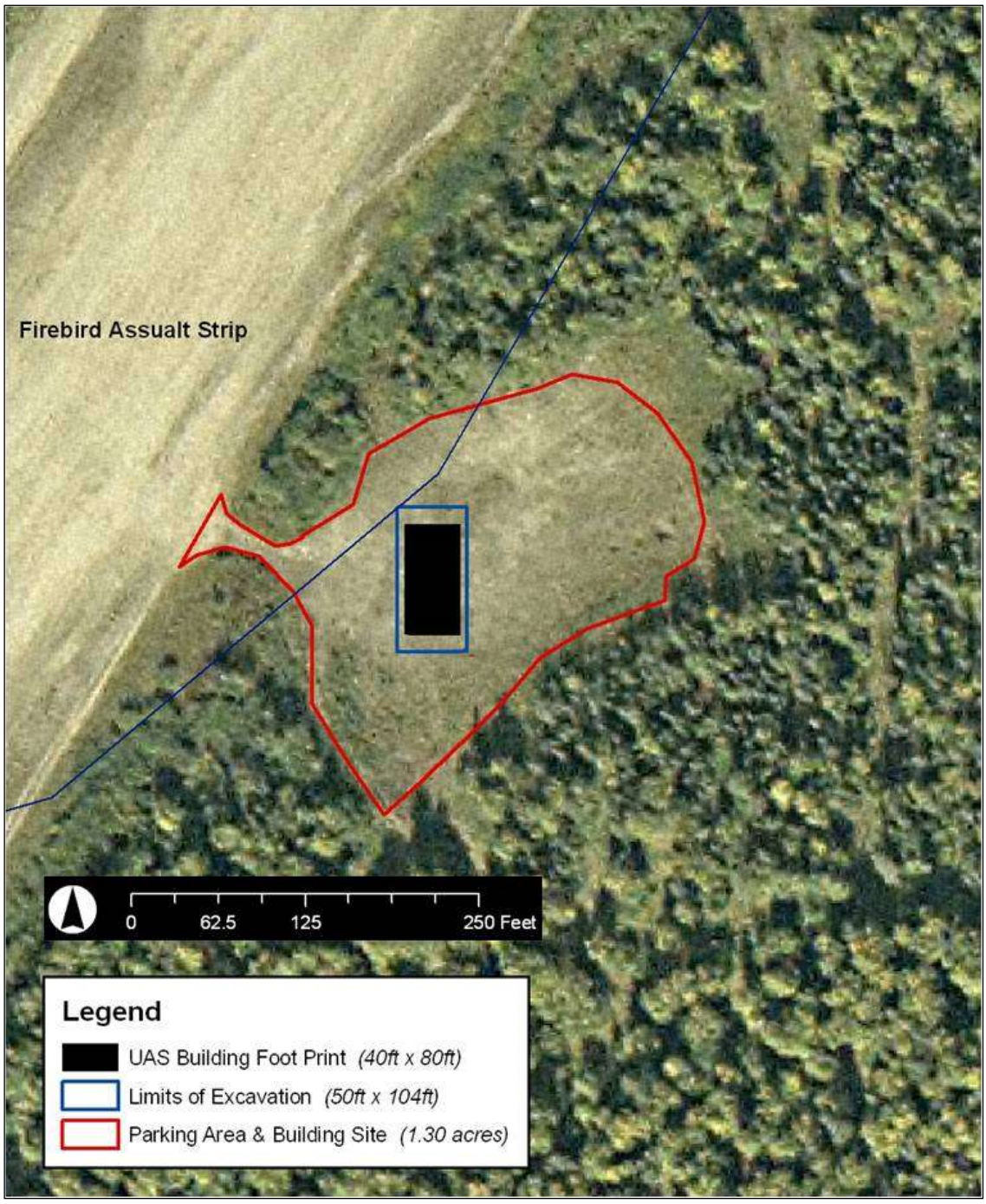

Figure 36. Proposed UAS Support Facility APE

Figure 37. Overview of UAS Support Facility APE (view to west)

Figure 38. Test pit stratigraphy

3.3 YTA Additional Findings: Site XBD-000364

In order to assist USAG FWA Range Control with siting a potential borrow pit at the YTA, CSU CEMML archaeologists conducted additional survey in the vicinity of Firing Point 8. This led to the discovery of XBD-000364—a potential rock shelter site. XBD-00364 will be evaluated for eligibility for inclusion in the NRHP early in the summer of 2010. Section 106 consultation related to borrow pit development at Firing Point 8 will commence shortly thereafter.

XBD-00364
Determination of Eligibility: Not evaluated

Site XBD-00364 is located at the crest of a hill within the YTA. Site elevation is 781 masl. The site is situated at the base of a schist bedrock outcrop (**Error! Reference source not found.**; Figure 39) on a hill that is the highest point amongst the surrounding hills in the vicinity. The outcrop is roughly 4 m in height and overhangs at roughly 50°. Several large boulders, rock debris and eboulis cover the base of the overhang. Test excavations recovered artifacts from within and beneath the rock debris. The overhang faces almost northwest and the site area has a prominent 180° viewshed with open views to the north, east and west. The location provides an especially prominent view of the Chena river valley to the north and the Tanana River valley and flats to the west; Clear Creek Buttes and Wood River Buttes are also visible. The ecosystem is characterized as alpine rocky moist scrub. Vegetation consists of low willow, dwarf birch, scattered low spruce, blueberries, low-bush cranberries, grasses, moss and lichen. A road recently constructed by the U.S. Air Force borders the southwestern site area. This may have disturbed the integrity of this portion of the site; however, the nature and extent of disturbance remain unknown.

Site XBD-00364 was found through subsurface testing. Artifacts were recovered from two of three test pits excavated amid the debris at the base of the outcrop. Two flakes of greenish-gray chert were recovered from depths of 15-30 cm BS. Given the geologic evolution of caves (e.g. Figure 40) the large boulders and debris at the base of the overhang and recovered artifacts indicate that the site is likely a collapsed rockshelter. The location would have provided substantial shelter in the past, and probably once served as a habitation site for prehistoric humans.

Site stratigraphy consists of rockfall in the form of very poorly sorted angular boulders and pebbles, sands and silts. Dark brown (5 YR 2.5/2) silt with organic material and charcoal extend from 0-8 cm BS. The underlying deposit consists of dark reddish brown (5YR3/2) silt from 8-18 cm BS. The basal unit encountered consist of very poorly sorted sands and silts from 18-42 cm BS. Angular cobbles and boulders occur at 30-60% frequency throughout the vertical extent of excavated test pits.

Figure 39. XBD-000364 overview (view to northeast)

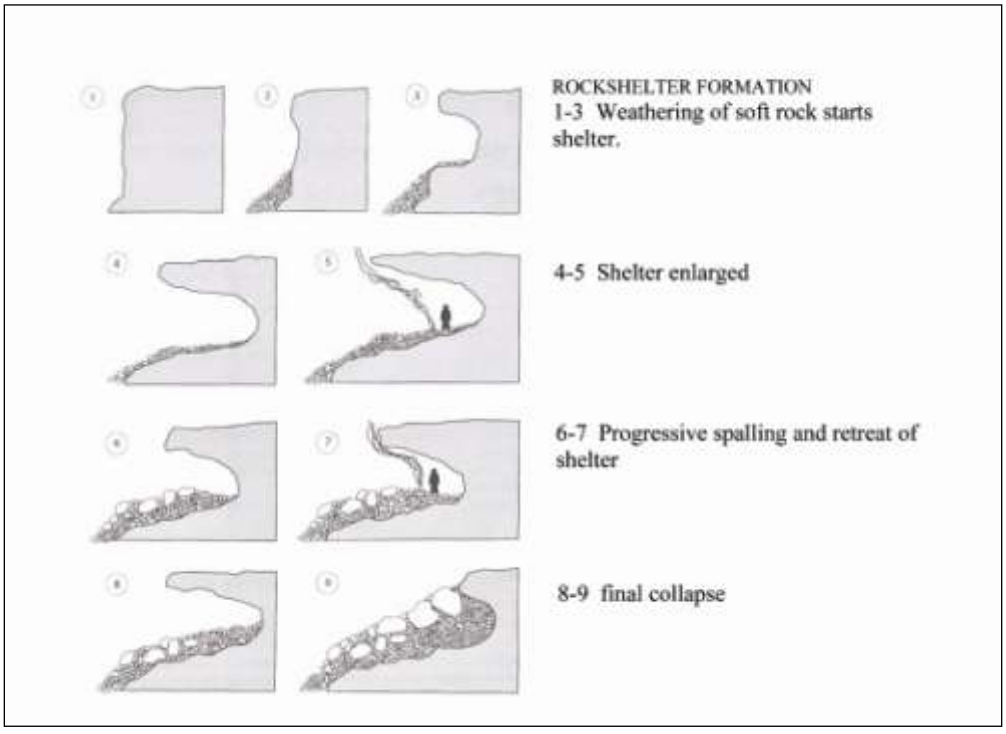

Figure 40. Geologic evolution of rockshelters

4.0 TANANA FLATS TRAINING AREA (TFTA)

The TFTA encompasses 653,748 acres, located to the south and west of the Tanana River. Extending 32 miles south of Fairbanks, it occupies the majority of the land between the Wood and Tanana Rivers. The area is located in the Tanana-Kuskokwim lowlands (Waharftig 1965) and is characterized by several topographically higher features on the landscape: Clear Creek Butte; Wood River Buttes; and the highlands surrounding Blair Lakes, which contain the highest point in the flats, a hill that rises to an elevation of 426 masl. The flats were formed by the northern migration of the Tanana River in response to uplift and orogeny associated with the Alaska Range to the south. The majority of the area is composed of recent swamp deposits and flood plain alluvium. Higher landforms such as the Wood River Buttes, Clear Creek Butte and the Blair Lakes hills are capped by a thin mantle of aeolian silt (loess).

The TFTA is home to 88 known prehistoric sites; 10 historic sites, and 3 Archaeological Districts: Clear Creek Buttes Archaeological District (5 sites on the crest of Clear Creek Buttes); Wood River Buttes Archaeological District (27 prehistoric sites located among the Wood River Buttes); and Blair Lakes Archaeological District (4 prehistoric sites, and 2 historic sites located on north shore of Blair Lakes South).

During the summer of 2009, Colorado State University CEMML conducted four individual projects within the TFTA. These include: (1) monitoring of geotechnical drilling related to a range development feasibility study; (2) survey of Anne Lake and the uplands adjacent to the Blair Lakes; (3) condition assessment of the Blair Lakes Archaeological District; and (4) survey of a vegetated dune field near the Wood River

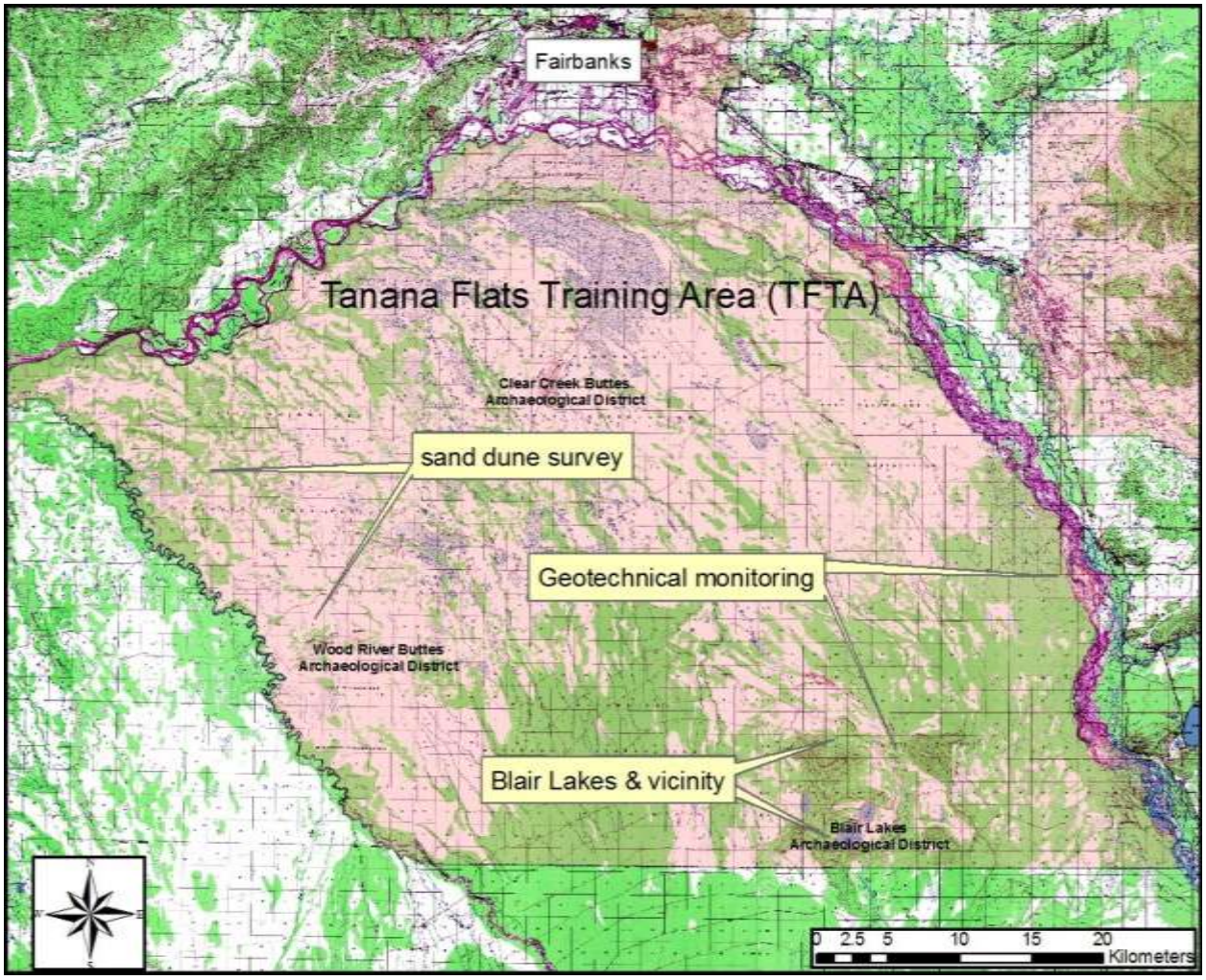

Figure 41. TFTA 2009 project areas

4.1 Geotechnical Monitoring

Undertaking
USAG FWA Directorate of Plans, Training, Mobilization and Security (DPTMS) conducted exploratory drilling, consisting of 40 geotechnical borings, in support of a feasibility study for construction of a Joint Live-fire and Maneuver Training Complex for year-round training operations at the TFTA. The purpose of the geotechnical data collection was to assist in the selection of preferred travel routes to provide access from a proposed railroad crossing over to the Tanana River in the Salcha area to the high ground in the Blair Lakes vicinity. Commercial helicopters provided transportation for field crews and drilling equipment to the drill sites. Dense vegetation across the project area required clearing and brushing of helicopter landing zones and drill sites. In total, about 3 acres of vegetation were cleared. The drill holes were 8" in diameter, drilled to an average depth of 16'. Shannon Wilson, Inc. of Fairbanks conducted the project from May 28-June 5 2009. The APE for the project consisted of a total of 3.1 acres found on the Fairbanks C-1 and B-1 USGS 1:63,000k topo map. The location of each boring is given in Table 1.

Methodology
Given the limited nature of soil disturbance, it was determined in consultation with the SHPO (SHPO response letter dated May 21, 2009) that Section 106 requirements could be satisfied by having an archaeologist accompany each drill team.

In preparation for fieldwork, FWA's Cultural Resources staff reviewed topographic maps, detailed aerial photos, and available sources of historical, archaeological, geologic and ecological information pertinent to the project area. The AHRS database provided information on known cultural resources in the project area.

Archaeological survey and monitoring was conducted by two Colorado State University CEMML archaeologists, under the direct supervision of Edmund Gaines, M.A., R.P.A. The on-site archaeologists conducted archaeological survey, consisting of pedestrian survey of each drilling location and shovel testing (50 cm tests, 1/4" screen) of each bore hole location immediately prior to drilling activities. The archaeologists then monitored drilling as it occurred, inspecting the cuttings for the presence of cultural material. It was understood that if archaeological sites or other cultural resources were identified, the contractor would immediately cease work in the vicinity, the site will be documented in accordance with AHRS standards, and the SHPO would be contacted immediately.

Table 1. Geotechnical bores

Bore	LAT	LONG	UTM Easting	UTM Northing	Elev.(masl)
B-1	64.52411600	-147.11980158	494251	7155425	192
B-2	64.35441052	-147.29838660	485592	7136542	273
B-3	64.49102558	-147.16207417	492213	7151742	196
B-4	64.47357119	-147.16304705	492162	7149797	204
B-5	64.46392764	-147.17798477	491440	7148724	206
B-6	64.45852475	-147.18102252	491292	7148123	208
B-7	64.44855464	-147.18927979	490892	7147013	205
B-8	64.43967527	-147.19971500	490387	7146025	200
B-9	64.42404847	-147.20830534	489967	7144285	219
B-10	64.41437894	-147.22693302	489066	7143210	280
B-11	64.43122857	-147.22646013	489096	7145088	207
B-12	64.51354307	-147.10162961	495122	7154245	192
B-13	64.45281900	-147.24605400	488160	7147498	198
B-14	64.49998257	-147.18199327	491259	7152743	191
B-15	64.49659258	-147.20438301	490182	7152368	188
B-16	64.49029358	-147.22175064	489345	7151669	201
B-17	64.48307735	-147.23306981	488799	7150867	195
B-18	64.47376698	-147.25056837	487953	7149833	201
B-19	64.46232283	-147.24772949	488085	7148557	208
B-20	64.43411605	-147.24950777	487987	7145414	208
B-21	64.47093860	-147.18514057	491098	7149507	200
B-22	64.45866196	-147.21293562	489757	7148143	208
B-23	64.45217780	-147.22956967	488954	7147423	210
B-24	64.42885917	-147.26961394	487016	7144832	210
B-25	64.40697158	-147.30285253	485404	7142400	224
B-26	64.39568099	-147.31059337	485025	7141144	227
B-27	64.37574497	-147.31468892	484816	7138923	248
B-28	64.35751483	-147.35070510	483067	7136901	261
B-29	64.35325054	-147.31631272	484725	7136417	268
B-30	64.36449026	-147.27067754	486935	7137659	271
B-31	64.37747207	-147.26195484	487362	7139104	259
B-32	64.38662856	-147.23214763	488804	7140119	278
B-33	64.36070635	-147.23759592	488530	7137231	274
B-34	64.36886286	-147.21566267	489592	7138136	233
B-35	64.37812202	-147.17319141	491645	7139162	230
B-36	64.38597500	-147.12706800	493871	7140032	219
B-37	64.39649400	-147.07752900	496262	7141200	214
B-38	64.44274642	-147.09601761	495379	7146355	210
B-39	64.42613600	-147.15026500	492762	7144510	204
B-40	64.42502807	-147.18017508	491323	7144390	218

Cultural Resources
There are 16 individual AHRS-listed archaeological sites in the general vicinity of the project. These are listed in Table 2:

Table 2. AHRS sites in vicinity of geotechnical drilling

Site	Site type
*FAI-00044**	prehistoric
*FAI-00045**	prehistoric
*FAI-00046**	historic cabin remains
FAI-00047	prehistoric
FAI-00048*	prehistoric
FAI-00049*	prehistoric
FAI-00050	prehistoric
FAI-00051	prehistoric
FAI-00052	prehistoric
FAI-00053	prehistoric
*FAI-00054**	historic cabin remains
FAI-00055	prehistoric (?) isolated hearth
FAI-00056	prehistoric
FAI-00057	historic cabin remains
FAI-00086	prehistoric
FAI-00087	prehistoric

*(*sites in italics constitute FAI-00335, The Blair Lakes Archaeological District)*

The Blair Lakes Archaeological District (FAI-00335)
The Blair Lakes Archaeological District consists of six archaeological sites (see Table 2) located on the shore of Blair Lakes South. Four of these sites—FAI-00044, FAI-00046, FAI-00048, and FAI-00049—are prehistoric sites yielding flakestone artifacts and faunal remains from a buried context. Two of the sites—FAI-00045, and FAI-00054—are log cabin and cache pit remains and artifacts associated with the late 1930's Walter "Tex" Blair homestead.

Blair Lakes has provided valuable information on both the prehistory and history of the Tanana Valley. The prehistoric components at the Blair Lakes are affiliated with the Denali, and Northern Archaic traditions with a potential late prehistoric occupation (Dixon et al. 1980). The Denali complex is represented by microblades, microblade cores, and burin spalls. Evidence for a Northern Archaic occupation is present in the form of lanceolate and side-notched points. A radiocarbon date of 1820 +- 70 BP from site FAI-00054 is later than the accepted temporal limits of the Northern Archaic, and possibly represents a late prehistoric Athabaskan occupation.

The historic component at the Blair Lakes documents a homestead established by Walter "Tex" Blair in the late 1930's. The homestead was one of the few in the central portions of the Tanana Valley, and the only one in the Blair Lakes vicinity. The lakes were named after Mr. Blair.

Results

Bore B-1
Latitude: 64.524116° N
Longitude: 147.11980158° W
AHRS sites within 1km: none
Bore B-1 is located in the Tanana River floodplain at UTM coordinates Zone 6N, 494251E, 7155425N. The ecosystem is characterized as riverine moist needleleaf forest. Vegetation consists primarily of thick black spruce, with an understory of thick mosses (Figure 42). The area is entirely flat with a slope of 0%.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area generally appears to have a very low probability of containing cultural resources. Shovel testing revealed frozen ground directly beneath the root mat (Figure 43).

Figure 42. Bore B-1 overview

Figure 43. Bore B-1 test pit

Bore B-2
Latitude: 64.35441052° N
Longitude: 147.2983866° W
AHRS sites within 1km: FAI-00057
Bore B-2 is located on a terrace edge overlooking Dry Creek in the vicinity of the Blair Lakes at UTM coordinates Zone 6N, 485591E, 7136541N. The ecosystem is characterized as lowland gravelly needleleaf forest. Vegetation consists primarily of thick black spruce, with some scattered aspen, and an understory of sedges, mosses, low-bush cranberries and Labrador tea. (Figure 44). The drill area is entirely flat with a slope of 0%; the terrace edge drops at a 30-40% slope to the west, dropping roughly 10 m to Dry Creek below.

The nearest known site is FAI-00057. FAI-00057 is reported by Dixon et al. (1980:149-150, 352) as the remains of a historic cabin and cache pit associated with either the Buzby or Blair homestead. Dixon et al. (1980: 150) report the site boundaries as a restricted 20 x 20 m area. There were no impacts to FAI-00057 as a result of activities associated with geotechnical drilling.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. With a prominent viewshed overlooking a Dry Creek to the west, the area was determined to have a higher probability of containing cultural resources. Accordingly, comprehensive survey methods were employed prior to geotechnical drilling. Pedestrian survey was performed on hands and knees at intervals of less than 5 m. Several shovel tests were excavated, and the cut bank exposure adjacent to Dry Creek was scrutinized for the presence of cultural materials. Shovel testing revealed a stratigraphic sequence of aeolian silts 25-35 cm thick overlying poorly sorted gravels (Figure 45). No cultural resources were identified; however, bits of wire, and several spent 5.56 mm cartridge casings provide evidence of recent military training use. An abandoned lawn chair and several modern beers cans are likely the result of modern hunters.

Figure 44. Bore B-2 overview

Figure 45. Bore B-2 test pit

Bore B-3
Latitude: 64.49102558° N
Longitude: 147.16207417° W
AHRS sites within 1km: none
Bore B-3 is located in the Tanana River floodplain at UTM coordinates Zone 6N, 492213E, 7151742N. The ecosystem is characterized as lowland wet needleleaf forest. Vegetation consists primarily of thick black spruce and some scattered birch, with an understory of Labrador tea, low-bush cranberries, and thick mosses (Figure 46). The area is entirely flat with a slope of 0%.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area generally appears to have a very low probability of containing cultural resources. Shovel testing revealed mucky, water-saturated silts overlying frozen ground at a depth of roughly 30 cm BS (Figure 47).

Figure 46. Bore B-3 overview

Figure 47. Bore B-3 test pit

Bore B-4
Latitude: 64.47357119° N
Longitude: 147.16304705° W
AHRS sites within 1km: none
Bore B-4 is located in the Tanana River floodplain at UTM coordinates Zone 6N, 492161E, 7149797N. The ecosystem is characterized as a lowland tussock scrub bog. Vegetation consists primarily of scattered black spruce and dwarf scrub with an understory of Labrador tea, low-bush cranberries, and thick mosses (Figure 48). The area is entirely flat with a slope of 0%.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area generally appears to have a very low probability of containing cultural resources. Shovel testing revealed frozen ground directly beneath the root mat (Figure 49).

Figure 48. Bore B-4 overview

Figure 49. Bore B-4 test pit

Bore B-5
Latitude: 64.46392764° N
Longitude: 147.17798477° W
AHRS sites within 1km: none
Bore B-5 is located in the Tanana River floodplain at UTM coordinates Zone 6N, 491440E, 7148724N. The ecosystem is characterized as lowland wet needleleaf forest. Vegetation consists primarily of thick black spruce, with an understory of Labrador tea, low-bush cranberries, and thick mosses (Figure 50). The area is entirely flat with a slope of 0%.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area generally appears to have a very low probability of containing cultural resources. Shovel testing revealed frozen ground directly beneath the root mat (Figure 51).

Figure 50. Bore B-5 overview

Figure 51. Bore B-5 test pit

Bore B-6
Latitude: 64.45852475° N
Longitude: 147.18102252° W
AHRS sites within 1km: none
Bore B-6 is located in the Tanana River floodplain at UTM coordinates Zone 6N, 491292E, 7148122N. The ecosystem is characterized as lowland wet needleleaf forest. Vegetation consists primarily of thick black spruce, with an understory of Labrador tea, low-bush cranberries, and thick mosses (Figure 52). The area is entirely flat with a slope of 0%.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area generally appears to have a very low probability of containing cultural resources. Shovel testing revealed a stratigraphic sequence of 15-20 cm of silt overlying frozen ground (Figure 53).

Figure 52. Bore B-6 overview

Figure 53. Bore B-6 test pit

Bore B-7
Latitude: 64.44855464° N
Longitude: 147.18927979° W
AHRS sites within 1km: none
Bore B-7 is located in the Tanana River floodplain at UTM coordinates Zone 6N, 490891E, 7147012N. The ecosystem is characterized as lowland wet needleleaf forest. Vegetation consists primarily of thick black spruce, with an understory of Labrador tea, low-bush cranberries, and thick mosses (Figure 54). The area is entirely flat with a slope of 0%.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area generally appears to have a very low probability of containing cultural resources. Shovel testing revealed frozen ground directly beneath the root mat (Figure 55).

Figure 54. Bore B-7 overview

Figure 55. Bore B-7 test pit

Bore B-8
Latitude: 64.43967527° N
Longitude: 147.19971500° W
AHRS sites within 1km: none
Bore B-8 is located in the Tanana River floodplain at UTM coordinates Zone 6N, 490386E, 7146024N. The ecosystem is characterized as lowland wet dwarf scrub forest. Vegetation consists primarily of scattered black spruce, with an understory of Labrador tea, low-bush cranberries, and thick mosses (Figure 56). The area is entirely flat.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area generally appears to have a very low probability of containing cultural resources. Shovel testing revealed frozen ground directly beneath the root mat (Figure 57).

Figure 56. Bore B-8 overview

Figure 57. Bore B-8 test pit

Bore B-9
Latitude: 64.42404847° N
Longitude: 147.20830534° W
AHRS sites within 1km: none
Bore B-9 is located in the Tanana River floodplain at UTM coordinates Zone 6N, 489967E, 7144284N. The ecosystem is characterized as riverine moist needleleaf forest. Vegetation consists primarily of thick black spruce, with an understory of Labrador tea, low-bush cranberries, and thick mosses (Figure 58). The area is entirely flat with a slope of 0%.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area generally appears to have a very low probability of containing cultural resources. Shovel testing revealed frozen ground directly beneath the root mat (Figure 59).

Figure 58. Bore B-9 overview

Figure 59. Bore B-9 test pit

Bore B-10
Latitude: 64.41437894° N
Longitude: 147.22693302° W
AHRS sites within 1km: FAI-00056
Bore B-10 is located in the saddle of a high butte overlooking the Tanana River floodplain west of the Blair Lakes at UTM coordinates Zone 6N, 489066E, 7143210N. The ecosystem is characterized as upland rocky broadleaf forest. Vegetation consists primarily of thick alder, birch and aspen, with an understory of sedges, low-bush cranberries and Labrador tea (Figure 60). The drill area has a slope of 3-7%; the northern edge of the drill area drops at a 30-40% slope, dropping roughly 40 m to the valley floor

One AHRS site is located in the general vicinity. FAI-00056 is reported by Dixon et al. (1980:147-148, 351) as a single chert pressure flake recovered from one of six test pits excavated on the point of the landform.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. With a prominent viewshed overlooking the Tanana Valley to the north and the known prehistoric site in the vicinity, the area was determined to have a high probability of containing cultural resources. Accordingly, comprehensive survey methods were employed prior to geotechnical drilling. Pedestrian survey was performed on hands and knees at intervals of less than 5 m. Several shovel test pits were also excavated. Shovel testing revealed a stratigraphic sequence of aeolian silts 35-55 cm thick overlying decomposing schist bedrock (Figure 61). No cultural resources were identified and there was no evidence of recent use of the area. As stated above, AHRS site FAI-00056 is located more than 770 m from drill site B-10; there were no impacts to FAI-00056 as a result of activities associated with geotechnical drilling of bore B-10.

Figure 60. Bore B-10 overview

Figure 61. Bore B-10 test pit

Bore B-11
Latitude: 64.43122857° N
Longitude: 147.22646013° W
AHRS sites within 1km: none
Bore B-11 is located on the Tanana valley floor at UTM coordinates Zone 6N, 489095E, 7145087N. The ecosystem is characterized as lowland wet needleleaf forest. Vegetation consists primarily of thick black spruce, with an understory of Labrador tea, low-bush cranberries, and thick mosses (Figure 62). The area is entirely flat with a slope of 0%.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area generally appears to have a very low probability of containing cultural resources. Shovel testing revealed frozen ground directly beneath the root mat (Figure 63).

Figure 62. Bore B-11 overview

Figure 63. Bore B-11 test pit

Bore B-12
Latitude: 64.51354307° N
Longitude: 147.10162961° W
AHRS sites within 1km: none
Bore B-12 is located in the Tanana River floodplain at UTM coordinates Zone 6N, 495121E, 7154245N. The ecosystem is characterized as lowland wet needleleaf forest. Vegetation consists primarily of thick black spruce, with an understory of Labrador tea, low-bush cranberries, and thick mosses (Figure 64). The area is entirely flat with a slope of 0%.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area generally appears to have a very low probability of containing cultural resources. Shovel testing revealed frozen ground directly beneath the root mat (Figure 65).

Figure 64. bore B-12 overview

Figure 65. Bore B-12 test pit

Bore B-13
Latitude: 64.452819° N
Longitude: 147.246054° W
AHRS sites within 1km: none
Bore B-13 is located on the Tanana valley floor at UTM coordinates Zone 6N, 488160E, 7147497N. The ecosystem is characterized as lowland dwarf scrub bog. Vegetation consists of scattered black spruce, with an understory of Labrador tea, low-bush cranberries, and thick mosses (Figure 66). The area is entirely flat with a slope of 0%.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area generally appears to have a very low probability of containing cultural resources. Shovel testing revealed frozen ground directly beneath the root mat (Figure 67).

Figure 66. Bore B-13 overview

Figure 67. Bore B-13 test pit

Bore B-14
Latitude: 64.49998257° N
Longitude: 147.18199327° W
AHRS sites within 1km: none
Bore B-14 is located in the Tanana River floodplain at UTM coordinates Zone 6N, 491258E, 7152742N. The ecosystem is characterized as lowland tussock scrub bog. Vegetation consists of isolated black spruce, tussocks and sedges (Figure 68). The area is entirely flat with a slope of 0%.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area generally appears to have a very low probability of containing cultural resources. Shovel testing revealed water-saturated and frozen ground directly beneath the root mat (Figure 69).

Figure 68. Bore B-14 overview

Figure 69. Bore B-14 test pit

Bore B-15
Latitude: 64.49659258° N
Longitude: 147.120438301° W
AHRS sites within 1km: none
Bore B-15 is located in the Tanana River floodplain at UTM coordinates Zone 6N, 490182E, 7152368N. The ecosystem is characterized as lowland dwarf scrub bog. Vegetation consists of scattered black spruce, mosses and sedges (Figure 70). The area is entirely flat with a slope of 0%.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area generally appears to have a very low probability of containing cultural resources. Shovel testing revealed frozen ground and ice directly beneath the root mat (Figure 71).

Figure 70. Bore B-15 overview

Figure 71. Bore B-15 test pit

Bore B-16
Latitude: 64.49029358° N
Longitude: 147.22175064° W
AHRS sites within 1km: none
Bore B-16 is located in the Tanana River floodplain at UTM coordinates Zone 6N, 489345E, 7151669N. The ecosystem is characterized as lowland dwarf scrub bog. Vegetation consists of scattered black spruce, mosses and sedges (Figure 72). The area is entirely flat with a slope of 0%.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area generally appears to have a very low probability of containing cultural resources. Shovel testing revealed frozen ground directly beneath the root mat (Figure 73).

Figure 72. Bore B-16 overview

Figure 73. Bore B-16 test pit

Bore B-17
Latitude: 64.48307735° N
Longitude: 147.23306981° W
AHRS sites within 1km: none
Bore B-17 is located in the Tanana River floodplain at UTM coordinates Zone 6N, 488798E, 7150866N. The ecosystem is characterized as lowland wet needleleaf forest. Vegetation consists of thick black spruce, with an understory comprised of thick mosses (Figure 74). The area is entirely flat with a slope of 0%.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area generally appears to have a very low probability of containing cultural resources. Shovel testing revealed frozen and water-saturated ground directly beneath the root mat (Figure 75).

Figure 74. Bore B-17 overview

Figure 75. Bore B-17 test pit

Bore B-18
Latitude: 64.47376698° N
Longitude: 147.25056837° W
AHRS sites within 1km: none
Bore B-18 is located in the Tanana River floodplain at UTM coordinates Zone 6N, 487935E, 7149832N. The ecosystem is characterized as lowland wet needleleaf forest. Vegetation consists of thick black spruce, with a moss understory (Figure 76). The area is entirely flat.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area generally appears to have a very low probability of containing cultural resources. Shovel testing revealed frozen ground directly beneath the root mat (Figure 77).

Figure 76. Bore B-18 overview

Figure 77. Bore B-18 test pit

Bore B-19
Latitude: 64.46232283° N
Longitude: 147.24772949° W
AHRS sites within 1km: none
Bore B-19 is located in the Tanana River floodplain at UTM coordinates Zone 6N, 488084E, 7148556N. The ecosystem is characterized as riverine moist needleleaf forest. Vegetation consists of thick black spruce with scattered white spruce and a moss understory (Figure 78). The area is entirely flat.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area generally appears to have a very low probability of containing cultural resources. Shovel testing revealed frozen ground directly beneath the root mat (Figure 79).

Figure 78. Bore B-19 overview

Figure 79. Bore B-19 test pit

Bore B-20
Latitude: 64.43411605° N
Longitude: 147.24950777° W
AHRS sites within 1km: none
Bore B-20 is located on the Tanana valley floor at UTM coordinates Zone 6N, 487986E, 7145413N. The ecosystem is characterized as lowland wet needleleaf forest. Vegetation consists of thick black spruce, with an understory of thick mosses (Figure 80). The area is entirely flat.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area generally appears to have a very low probability of containing cultural resources. Shovel testing revealed water-saturated, frozen ground directly beneath the root mat (Figure 81).

Figure 80. Bore B-20 overview

Figure 81. Bore B-20 test pit

Bore B-21
Latitude: 64.4709386° N
Longitude: 147.18514057° W
AHRS sites within 1km: none
Bore B-21 is located in the Tanana River floodplain at UTM coordinates Zone 6N, 491098E, 7149506N. The ecosystem is characterized as lowland tussock scrub bog. Vegetation consists of isolated black spruce with an understory of tussocks, sedges, low-bush cranberries, and other dwarf scrub (Figure 82). The area is entirely flat.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area generally appears to have a very low probability of containing cultural resources. Shovel testing revealed water-saturated muck overlying frozen ground directly beneath the root mat (Figure 83).

Figure 82. Bore B-21 overview

Figure 83. Bore B-21 test pit

Bore B-22
Latitude: 64.45866196° N
Longitude: 147.21293562° W
AHRS sites within 1km: none
Bore B-22 is located on the Tanana valley floor at UTM coordinates Zone 6N, 489757E, 7148142N. The ecosystem is characterized as lowland wet low scrub. Vegetation consists of scattered dwarf birch with an understory of sedges, low-bush cranberries, and other low scrub (Figure 84). The area is entirely flat.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area generally appears to have a very low probability of containing cultural resources. Shovel testing revealed mucky, water-saturated, frozen silt directly beneath the root mat (Figure 85).

Figure 84. Bore B-22 overview

Figure 85. Bore B-22 test pit

Bore B-23
Latitude: 64.45217780° N
Longitude: 147.22956967° W
AHRS sites within 1km: none
Bore B-23 is located on the Tanana valley floor at UTM coordinates Zone 6N, 488954E, 7147422N. The ecosystem is characterized as lowland wet needleleaf forest. Vegetation consists of thick black spruce with an understory of thick mosses and Labrador tea (Figure 86). The area is entirely flat with a slope of 0%.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area generally appears to have a very low probability of containing cultural resources. Shovel testing revealed frozen ground directly beneath the root mat (Figure 87).

Figure 86. Bore B-23 overview

Figure 87. Bore B-23 test pit

Bore B-24
Latitude: 64.42885917° N
Longitude: 147.26961394° W
AHRS sites within 1km: none
Bore B-24 is located on the Tanana valley floor at UTM coordinates Zone 6N, 487016E, 7144831N. The ecosystem is characterized as lowland wet needleleaf forest. Vegetation consists of thick black spruce with an understory of mosses, low-bush cranberries, blueberries, Labrador tea and other low scrub (Figure 88). The area is entirely flat with a slope of 0%.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area generally appears to have a very low probability of containing cultural resources. Shovel testing revealed frozen ground directly beneath the root mat (Figure 89).

Figure 88. Bore B-24 overview

Figure 89. Bore B-24 test pit

Bore B-25
Latitude: 64.40697158° N
Longitude: 147.30285253° W
AHRS sites within 1km: none
Bore B-25 is located on the first terrace on the east bank of Dry Creek at UTM coordinates Zone 6N, 485403E, 7142399N. The ecosystem is characterized as riverine moist needleleaf forest. Vegetation consists of intermingled black and white spruce with an understory of mosses, Labrador tea and wild rose (Figure 90). The area is entirely flat.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area is located on a creek margin, and thus appears to have a higher probability of containing cultural resources. Accordingly, comprehensive survey methods were employed prior to geotechnical drilling. Pedestrian survey was performed on hands and knees at intervals of less than 5 m. Several shovel test pits were also excavated. Shovel testing revealed frozen ground directly beneath the root mat (Figure 91).

Figure 90. Bore B-25 overview

Figure 91. Bore B-25 test pit

Bore B-26
Latitude: 64.39568099° N
Longitude: 147.31059337° W
AHRS sites within 1km: none
Bore B-26 is located in a lowland area to the northeast of the Blair Lakes at UTM coordinates Zone 6N, 485024E, 7141143N. The ecosystem is characterized as lowland wet needleleaf forest. Vegetation consists of thick black spruce with an understory of mosses, low-bush cranberries, and Labrador tea (Figure 92). The area is entirely flat.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area generally appears to have a very low probability of containing cultural resources. Shovel testing revealed frozen ground directly beneath the root mat (Figure 93).

Figure 92. Bore B-26 overview

Figure 93. Bore B-26 test pit

Bore B-27
Latitude: 64.37574497° N
Longitude: 147.314688927° W
AHRS sites within 1km: none
Bore B-27 is located on a low rise northeast of the Blair Lakes at UTM coordinates Zone 6N, 484816E, 7138922N. The ecosystem is characterized as an upland dry broadleaf forest. Vegetation consists of thick birch with an understory of dwarf birch, low-bush cranberries, Labrador tea, and other dwarf scrub (Figure 94). The area exhibits a slope of 3-6%.

No AHRS sites are reported within 1 km of drill site B-27. There is, however, one site located on the northeast shore of Blair Lakes North, more than 1.2 km distant. Site FAI-00047 was reported by Dixon et al. (1980: 120-122) as yielding one microblade fragment, one scraper and two pieces of flakestone debitage from two of nine test pits excavated. The site's location is far outside the APE of drill site B-27 and it was not impacted by activities associated with geotechnical drilling.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The low rise appears to have a higher probability of containing cultural resources. Comprehensive survey methods were employed prior to geotechnical drilling. Pedestrian survey was performed on hands and knees at intervals of less than 5 m. Numerous shovel test pits were excavated. Shovel testing revealed a stratigraphic sequence consisting of aeolian silts roughly 30-40 cm thick overlying frozen silt (Figure 95). No cultural resources were identified and there was no evidence of modern use of the area.

Figure 94. Bore B-27 overview

Figure 95. Bore B-27 test pit

Bore B-28
Latitude: 64.35751483° N
Longitude: 147.35070510° W
AHRS sites within 1km: FAI-00044; FAI-00045; FAI-00046; FAI-00048; FAI-00049 FAI-00054; FAI-00055; (FAI-00335 Blair Lakes Archaeological District)
Bore B-28 is located in a wetland roughly 430 m to the east of the Blair Lake South and 530 m south of Blair Lake North at UTM coordinates Zone 6N, 483067E, 7713690N. The ecosystem is characterized as lowland wet low scrub. Vegetation consists of tussocks, sedges, dwarf birch, blueberries, Labrador tea and other low scrub low-bush cranberries, Labrador tea, and other dwarf scrub (Figure 96). The area is entirely flat with a slope of 0%

Several AHRS sites are reported within 1 km of drill site B-28: FAI-00044; FAI-00045; FAI-00046; FAI-00048; FAI-00049 FAI-00054; and FAI-00055. Taken together (with the exception of FAI-00055) these sites comprise Blair Lakes Archaeological District (FAI-00035). The nearest site in the district to bore B-28 is FAI-00049, located more than 700 m distant.

The drill area is wet and boggy and generally appears to have low potential for containing cultural resources. However, given the drill area's proximity to the sites discussed above, comprehensive survey and monitoring methods were employed prior to and during geotechnical drilling. Numerous shovel test pits were excavated, all of which revealed mucky, water-saturated, frozen ground directly beneath tussocks (Figure 97). No cultural resources were identified through pedestrian survey, subsurface testing or monitoring of drilling. As the sites within the Blair Lakes Archaeological District are more than 700 m distant, they suffered no impacts or adverse affects.

Figure 96. Bore B-28 overview (view to northwest, note hills surrounding Blair Lakes in background)

Figure 97. Bore B-28 test pit

Bore B-29
Latitude: 64.35325054° N
Longitude: 147.31631272° W
AHRS sites within 1km: FAI-00057; FAI-00058
Bore B-29 is located in the Dry Creek floodplain roughly 2 km east of Blair Lakes at UTM coordinates Zone 6N, 484725E, 7136416N. The ecosystem is characterized as lowland gravelly broadleaf forest. Vegetation consists of thick alders, willows, birch, and spruce, with an understory of dwarf birch, wild rose, and Labrador tea (Figure 98). The area is entirely flat with a slope of 0%; however, roughly 120 m to the west there is a prominent escarpment roughly 3-4 m high formed by the first terrace of Dry Creek.

Two AHRS sites are reported within 1 km of drill site B-29: FAI-00057 and FAI-00058. Both sites consist of historic cabin and cache pit remains. Site FAI-00057 is reported by Dixon et al. (1980: 149-150) as a 20 x 20 m area; while site FAI-00058 is reported by Dixon et al. (1980:151-153) as 30 x 30 m in size.

The drill area is flat and choked with vegetation and generally appears to have low potential for containing cultural resources. Test pit stratigraphy revealed a sequence of mucky silts and sands overlying fluvioglacial gravels at depths of 50-70 cm BS (Figure 99). No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. There were no impacts to either FAI-00057 or FAI-00058 as a result of activities associated with geotechnical drilling.

Figure 98. Bore B-29 overview

Figure 99. Bore B-29 test pit

Bore B-30
Latitude: 64.36449026° N
Longitude: 147.27067754° W
AHRS sites within 1km: none
Bore B-30 is located in a wetland roughly 3.3 k m to the east of the Blair Lakes and 1.1 km west of Pork Chop Lake at UTM coordinates Zone 6N, 486934E, 7137658N. The ecosystem is characterized as lowland dwarf scrub bog. Vegetation consists of scattered black spruce, with an understory of mosses, sedges, Labrador tea, low-bush cranberries, blueberries, and other low scrub (below). The area is entirely flat with a slope of 0%

No AHRS sites are reported within 1 km of drill site B-30. The nearest known archaeological site is FAI-00057 located roughly 1.8 km to the southeast.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area is a flat wetland that generally appears to have low probability for containing cultural resources. Shovel testing revealed mucky, water-saturated silt overlying frozen ground at a depth of 20 cm BS (Figure 101). No cultural resources were identified and there was no evidence of modern use of the area.

Figure 100. Bore B-30 overview

Figure 101. Bore B-30 test pit

Bore B-31
Latitude: 64.37747207° N
Longitude: 147.26195484° W
AHRS sites within 1km: none
Bore B-31 is located in a wetland roughly 3.8 k m to the east of the Blair Lakes and 1.8 km north of Pork Chop Lake at UTM coordinates Zone 6N, 487361E, 7139103N. The ecosystem is characterized as lowland wet needleleaf forest. Vegetation consists of black spruce, with an understory of mosses, sedges, Labrador tea, low-bush cranberries, and other low scrub (Figure 102). The area is entirely flat with a slope of 0%

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area is a flat wetland that generally appears to have low probability for containing cultural resources. Shovel testing revealed frozen ground directly beneath the root mat (Figure 103). No cultural resources were identified and there was no evidence of modern use of the area.

Figure 102. Bore B-31 overview

Figure 103. Bore B-31 test pit

Bore B-32
Latitude: 64.38662856° N
Longitude: 147.23214763° W
AHRS sites within 1km: none
Bore B-32 is located roughly 5 km east of Blair Lakes at UTM coordinates Zone 6N, 488803E, 7140118N. The ecosystem is characterized as upland dry broadleaf forest. Vegetation consists of birch and aspen, with an understory of Labrador tea, cranberries, dwarf birch and other low scrub (below). The area is entirely flat.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. Despite the fact that it is better drained that most of the project area, it generally appears to have low probability for containing cultural resources. It is entirely flat, with no viewshed to speak of, and located several kilometers from the nearest source of water. Shovel testing revealed a stratigraphic sequence of wet silts and sands 20-30 cm thick overlying frozen ground (below). No cultural resources were identified and there was no evidence of modern use of the area.

Figure 104. Bore B-32 overview

Figure 105. Bore B-32 test pit

Bore B-33
Latitude: 64.36070635° N
Longitude: 147.23759592° W
AHRS sites within 1km: none
Bore B-33 is located roughly 100 m to the south of Pork Chop Lake at UTM coordinates Zone 6N, 488529E, 7137230N. The ecosystem is characterized as a moist broadleaf-needleleaf forest. Vegetation consists of thick black spruce, tussocks, sedges, mosses, and Labrador tea (Figure 106). The area is entirely flat.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area is a flat wetland that generally appears to have low probability for containing cultural resources. Shovel testing revealed mucky silt overlying frozen ground at a depth of roughly 20 cm BS (Figure 107). No cultural resources were identified and there was no evidence of modern use of the area.

Figure 106. Bore B-33 overview

Figure 107. Bore B-33 test pit

Bore B-34
Latitude: 64.36886286° N
Longitude: 147.21566267° W
AHRS sites within 1km: none
Bore B-34 is located on the Tanana Valley floor at UTM coordinates Zone 6N, 489591E, 7138136 N. The ecosystem is characterized as lowland dwarf scrub bog. Vegetation consists of scattered black spruce, sedges, mosses, dwarf birch, Labrador tea, and other low scrub (FIGURE). The area is entirely flat.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area generally appears to have low probability for containing cultural resources. Shovel testing revealed frozen ground directly beneath the root mat (Figure). No cultural resources were identified and there was no evidence of modern use of the area.

Figure 108. Bore B-34 overview

Figure 109. Bore B-34 test pit

Bore B-35
Latitude: 64.37812202° N
Longitude: 147.17319141° W
AHRS sites within 1km: none
Bore B-35 is located on the Tanana Valley floor at UTM coordinates Zone 6N, 491644E, 7139161N. The ecosystem is characterized as lowland tussock scrub bog. Vegetation consists of scattered black spruce, with tussocks, mosses, blueberries, dwarf birch and Labrador tea (Figure 110). The area is entirely flat.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area generally appears to have low probability for containing cultural resources. Shovel testing revealed frozen ground directly beneath the root mat (Figure 111). No cultural resources were identified and there was no evidence of modern use of the area.

Figure 110. Bore B-35 overview

Figure 111. Bore B-35 test pit

Bore B-36
Latitude: 64.38597500° N
Longitude: 147.17319141° W
AHRS sites within 1km: none
Bore B-36 is located on the Tanana Valley floor at UTM coordinates Zone 6N, 493870E, 7140031N. The ecosystem is characterized as lowland dwarf scrub bog. Vegetation consists of scattered low black spruce, with sedges, Labrador tea, low bush cranberries, blueberries and other low scrub. The area is entirely flat.

The location of Bore B-36 is within the area previously surveyed for cultural resources and historic properties during 2006 as part of the Alaska Railroad Northern Rail Extension project (Potter et al. 2006). No cultural resources were identified during these surveys. Given the previous survey, the current project employed a strategy consisting of a low-speed, low-elevation helicopter flyover of the area (Figure 112). No cultural resources were identified

Figure 112. Bore B-36, aerial view (view to north)

Bore B-37
Latitude: 64.39649400° N
Longitude: 147.07752900° W
AHRS sites within 1km: none
Bore B-37 is located in the Tanana River floodplain at UTM coordinates Zone 6N, 496261E, 7141200N. The ecosystem is characterized as lowland tussock scrub bog. Vegetation consists of low scattered black spruce, tussocks, Labrador tea and sedges (Figure 113). The area is entirely flat.

The location of Bore B-37 is within the area previously surveyed for cultural resources and historic properties during 2006 as part of the Alaska Railroad Northern Rail Extension project (Potter et al. 2006). No cultural resources were identified during these surveys. Given the previous survey, the current project employed a strategy consisting of a low-speed, low-elevation helicopter flyover of the area (Figure 113). No cultural resources were identified

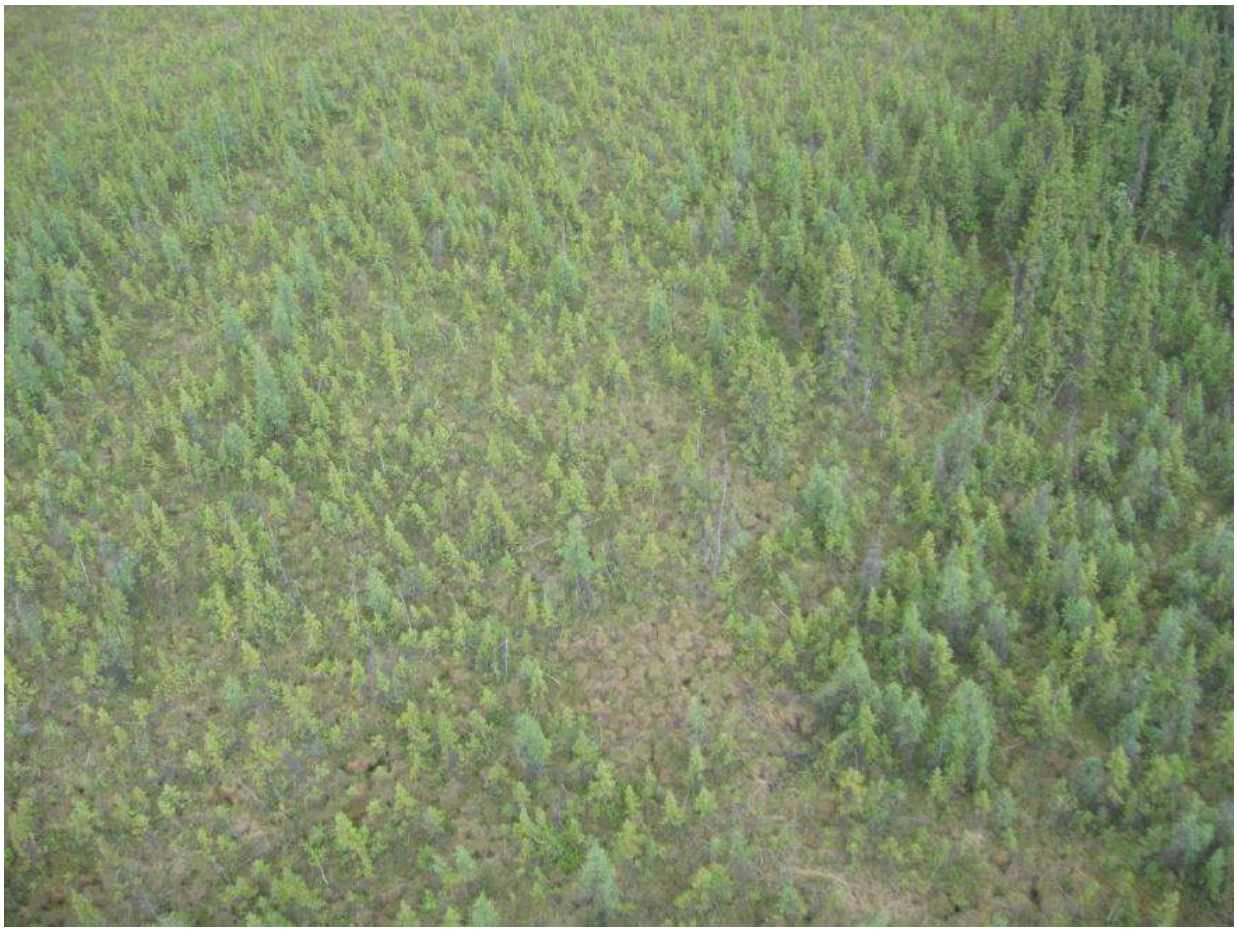

Figure 113. Bore B-37 aerial view (view to south)

Bore B-38
Latitude: 64.44274642° N
Longitude: 147.09601761° W
AHRS sites within 1km: none
Bore B-38 is located in the Tanana River floodplain at UTM coordinates Zone 6N, 495379E, 7146355N. The ecosystem is characterized as lowland tussock scrub bog. Vegetation consists of low scattered black spruce, tussocks, Labrador tea and sedges (Figure 114). The area is entirely flat.

The location of Bore B-36 is in the area previously surveyed for cultural resources and historic properties during 2006 as part of the Alaska Railroad Northern Rail Extension project (Potter et al. 2006). No cultural resources were identified during these surveys. Given the previous survey, the current project employed a strategy consisting of a low-speed, low-elevation helicopter flyover of the area (Figure 114). No cultural resources were identified.

Figure 114. Bore B-38 aerial view (view to northeast)

Bore B-39
Latitude: 64.42613600° N
Longitude: 147.15026500° W
AHRS sites within 1km: none
Bore B-39 is located in the Tanana River floodplain at UTM coordinates Zone 6N, 492762E, 7144509N. The ecosystem is characterized as lowland tussock scrub bog. Vegetation consists of low scrub, tussocks and sedges (Figure 115). The area is entirely flat.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area is a flat wetland that appears to have little to no probability of containing cultural resources. Shovel testing revealed water-saturated, mucky silts overlying frozen ground at a depth of roughly 20 cm BS (Figure 116).

Figure 115. Bore B-39 overview

Figure 116. Bore B-39 test pit

Bore B-40
Latitude: 64.42502807° N
Longitude: 147.18017508° W
AHRS sites within 1km: none
Bore B-40 is located in the Tanana River floodplain at UTM coordinates Zone 6N, 491322E, 7144389N. The ecosystem is characterized as lowland tussock scrub bog. Vegetation consists of tussocks, sedges and low scrub (Figure 117). The area is entirely flat.

No cultural resources were identified through pedestrian survey, subsurface testing or drill monitoring. The area is a flat wetland that appears to have little to no probability of containing cultural resources. Shovel testing revealed a water-logged marsh, with watery muck overlying frozen ground at roughly 20 cm (Figure 118).

Figure 117. Bore B-40 overview

Figure 118. Bore B-40 test pit

Summary and Recommendations

USAG FWA determined a finding of "no historic properties affected" by the activities related to the geotechnical drilling project. Although the project was conducted in the general vicinity of 16 individual AHRS sites, six of which constitute the Blair Lakes Archaeological District, the drill locations (Bores B-2 and B-29) in closest proximity to a known AHRS sites (FAI-00050, FAI-00057, and FAI-00058), were still more than 570 m distant. Field survey prior to drilling, and monitoring of drilling activities failed to identify any cultural resources. Based on these results, there is no reason to believe that the geotechnical drilling project warrants any further consideration under Section 106 of the NHPA (16 USC § 470, as amended 2000), and regulations codified in 36 CFR 800 (as amended 2004). No indications of burials or other human remains were observed; therefore, there are no further considerations under the Native American Graves Protection and Repatriation Act (25 U.S.C.§ 3001 *et seq*.).

4.2 Blair Lakes Uplands: Survey and Reconnaissance

Named after early 20th century Pioneer Walter "Tex" Blair, the Blair Lakes and surrounding hills are located in the southeastern portion of the TFTA, immediately west of the Tanana River (Figure 41). The Blair Lakes consist of Blair Lake North (266 acres), Blair Lake South (557 acres), Pork Chop Lake (118 acres), and Anne Lake (255) acres. Lake formation occurred during the late Pleistocene as a result either of rapid aggradation of Dry Creek, or tectonic faulting, or a combination of the two. Elevated beach ridges on the east shore of Blair Lake North indicate higher lake levels during the terminal Pleistocene or early Holocene, and on the basis of their elevation, indicate that the two lakes would have been connected during this time (Dixon et al. 1980).

Occupying an area of roughly 31 km², the hills and ridges surrounding Blair Lake are composed of metamorphic rocks, primarily Birch creek schist. These uplands rise from a surrounding broad, gently sloping outwash terrace, and contain the highest point in the TFTA— an unnamed hill that rises to an elevation of 426 masl.

To date, the Blair Lakes area has been a focal point for cultural resource management projects at the TFTA, albeit all of these projects have been somewhat limited in scope and work. Prior to our fieldwork in 2009, fourteen prehistoric sites, and four historic sites were known from the Blair Lakes area.

2009 Field Survey

Select areas in the Blair Lakes vicinity were targeted for archaeological survey during 2009 as part of long-range planning related to possible range developments at the TFTA. Fieldwork was conducted by a team of five CSU CEMML archaeologists under the supervision of Edmund Gaines, M.A., R.P.A. during August 3 to 7, and August 15 to 19, 2009. Field methods consisted of rotary-wing, and fixed wing aerial reconnaissance to select high-probability locations for ground survey. Twelve high probability areas were arbitrarily selected in three general geographic areas: a terrace edge east of Blair Lakes; the Anne Lake shoreline; and a sample of the upland hills north of the lakes. Ground survey consisted of visual surface inspection, and subsurface testing consisting of 50 x 50 cm shovel tests screened through ¼" mesh.

Terrace Edge

A prominent terrace edge punctuates the landscape east of the Blair Lakes. It is comprised of alluvial deposits (Péwé et al. 1966) that create a roughly N-S trending bench that rises 15-25 m above the abandoned Tanana River floodplain alluvium below. The terrace was targeted as high-probability area for ground survey during 2009. Survey efforts focused on eight high-potential areas along the terrace edge. We identified prehistoric archaeological sites at four of these locations. All but one of the sites was found through subsurface testing. In total, 57 shovel tests were excavated on the terrace, eight of which produced cultural remains. The following is a description of the sites:

FAI-02015
Determination of Eligibility: Not evaluated

Site FAI-02015 consists of a single gray chert projectile point distal fragment discovered on an eroding edge of a bluff overlooking the Tanana River flood plain to the south and east. The edge of the bluff slopes at around 40° dropping roughly 25 m to the valley floor below. The viewshed from the site is 180°, with open views of Flag Hill and the Tanana River to the east. Site elevation is 298 masl. The ecotype of the site is characterized as upland rocky dry mixed broadleaf/needleleaf forest. Vegetation consists of an open aspen stand and small, scattered white spruce, with an understory of small willow and low bush cranberry (Figure 119). The nearest source of water is an unnamed stream roughly 400 m to the east on the flats.

The artifact is a distal fragment of a lanceolate projectile point (Figure 120) made of dark gray (2.5Y 4/1) chert. It measures 27.3 mm long, 18.6 mm maximum width, and 4.9 mm maximum thickness. Both faces are entirely covered by random to sub-parallel pressure flakes. It exhibits a transverse fracture along an inclusion in the stone, and it seems likely that the point was fractured during manufacture.

No test pits were excavated, and the site is initially classified as an isolated lithic scatter. The viewshed and the proximity to water, however, would have made the area an attractive locale to prehistoric hunter-gatherers. Given the lack of surface exposure, and presence of intact stratigraphic deposits, it is very likely that the site contains additional buried archaeology.

Figure 119. FAI-02015 overview (view to northeast)

Figure 120. FAI-02015 projectile point distal fragment

FAI-02016
Determination of Eligibility: Not evaluated

Site FAI-02016 is located on the eastern-most promontory (Figure 121) of a north-south trending terrace edge. Site elevation is 302 masl. The site area itself is flat. Several m to the east, the ground slopes at 45° dropping 25 m to the flats below. The location provides a prominent 180° eastern viewshed of the Tanana River flood plain and Flag Hill. The ecotype at the site is upland rocky dry mixed broadleaf/needleleaf forest. Vegetation consists of small willow, low bush cranberry, aspen and small, scattered white spruce (Figure 122). The ground is uniformly covered with leaves. The nearest source of water is an unnamed stream 200 m to the east.

The site was found through subsurface testing. A single 50 cm x 50 cm shovel test was excavated yielding artifacts from 0-10 cm BS. The site consists of a single rhyolite cobble with several flake scars on each face (Figure 123) and three chert flakes. The cobble was found in situ lying flat at 5 cm BS; the flakes were dispersed from 0–10 cm BS.

The rhyolite cobble is flat and rounded, measuring 143.5 mm long, 95.6 mm wide, and 24.6 mm maximum thickness. It has one large percussion flake scar on one face, and two on the opposite face. There are also several thermal potlids and crazing fractures on each face. The artifact was likely a tested cobble or expedient cobble tool.

Site stratigraphy consists of aeolian silts and sands at least 120 cm thick overlying basal gravels (Figure 124). Soil development consists of a strong brown (10YR 2/2) root mat (O horizon) at 0 – 10 cm BS overlying a yellowish red (5YR 5/6) silty sand AB horizon at 10 –21 cm BS. A yellowish red (10YR 5/6) silty sand Bw horizon extends from 21–34 cm BS, which, in turn, is underlain by a gray (10YR 6/1) silt C horizon at 34 – 67 cm BS. Beneath that is a layer of gray (10YR 6/1) mottled with strong brown (7.5YR 5/8) fine sandy silt at 67 – 110 cm BS, which is overlying gray (10YR 6/1) silt at 110 – 120 cm BS. The basal unit is poorly sorted rounded gravels.

Table 3. FAI-02016 lithic debitage

Test Pit	Depth (cm BS)	Debitage Type	Size Class	Material Type	Color	Munsell Code
10	0-10	flake fragment	7.5-10 mm	chert	very dark gray	5Y 3/1
10	0-10	flake fragment	7.5-10 mm	chert	black	2.5Y 2.5/1
10	0-10	flake fragment	10-20 mm	chert	black	2.5Y 2.5/1

Figure 121. FAI-02016 aerial overview (view to northwest)

Figure 122. FAI-02016 overview (view to east)

Figure 123. FAI-02016 flaked cobble

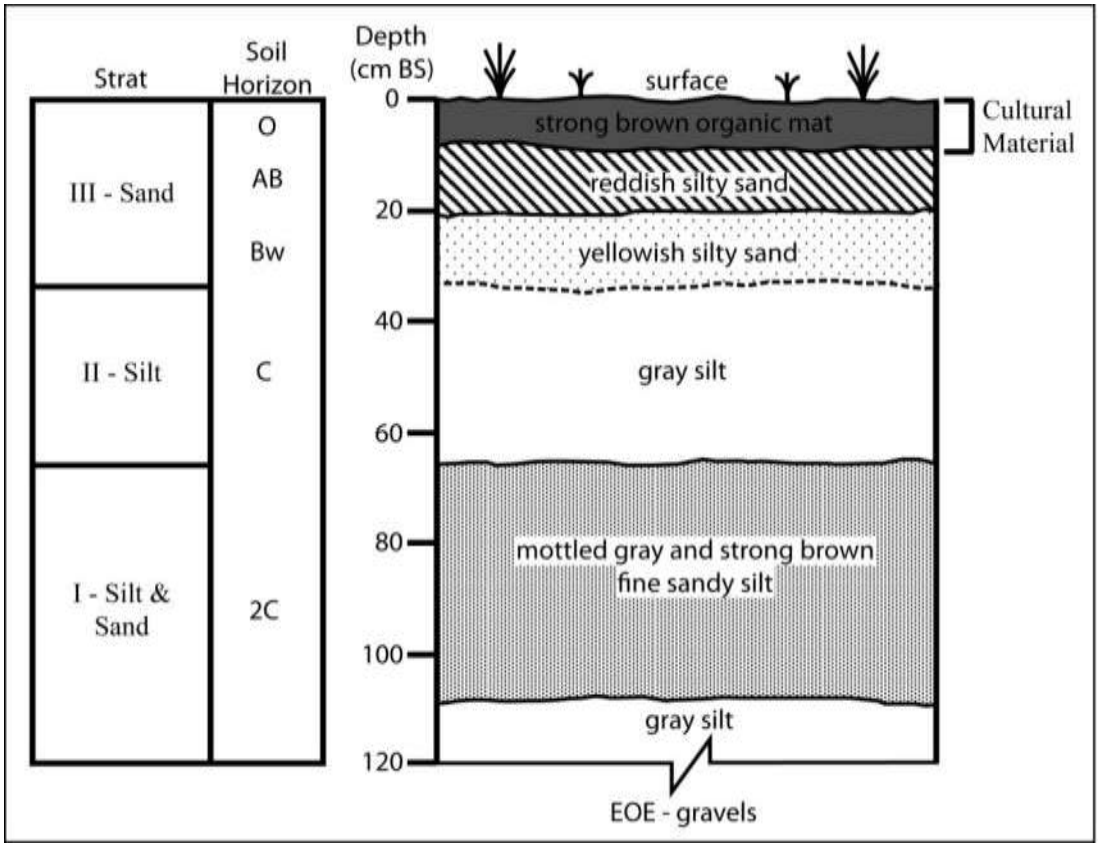

Figure 124. FAI-02016 stratigraphy

FAI-2018
Determination of Eligibility: Not evaluated

Site FAI-02018 is located on a promontory on a northeast-southwest trending terrace edge. Site elevation is 291 masl. The site area is generally flat, and the terrace edge slopes at approximately 40° to the southeast, dropping roughly 25 m to the Tanana Valley below. The location provides a commanding 180° viewshed overlooking a ravine to the southeast and the valley to the east. The ecotype is characterized as upland rocky dry mixed broadleaf/needleleaf forest. Vegetation consists of aspen and white spruce, with an understory of Labrador tea, small willow, and low bush cranberry (Figure 125). The ground is uniformly covered with leaf litter. The nearest source of water is an unnamed stream paralleling the landform about 40 m southeast.

Site FAI-02018 was identified through subsurface testing. Five of five 50 cm x 50 cm test pits excavated yielded a total of 112 lithic flakes (
Table 4), and two microblades (Figure 126;

Table 5), as well as five calcined bone fragments from depths of 0 – 90 cm BS. Four flakes were found in situ at depths of 4, 22, 33, and 38 cm BS. All of the calcined bone fragments were less than 7 mm in diameter—too small for element or species identification.

Site stratigraphy consists of aeolian silts at least 90 cm thick overlying basal gravels (Figure 127). Soil development is characterized as strong brown organic (10YR 2/2) silt, an AO horizon, at 0 – 9 cm BS, overlying a dark reddish brown (5YR 3/4) silt AB horizon at 9 – 20 cm BS, which in turn overlies a strong brown (7.5YR 4/6) silt Bw horizon from 20 – 35 cm BS. The underlying unit consists of a layer of yellowish brown (10YR 5/6) silt from 35 – 47 cm BS, which overlies yellowish brown (10YR 5/4) silt from 47 – 62 cm BS. The basal unit consists of (10YR 6/1) sandy silt with angular gravels from 62 – 75 cm BS, overlying dark yellowish brown (10YR 4/6) silty, sandy gravels at 75 – 90 cm BS.

Figure 125. FAI-02018 overview (view to north)

Table 4. FAI-02018 lithic debitage

Test Pit	Depth (cm BS)	Debitage Type	Size Class	Material Type	Color	Munsell Code
34	0-4	broken flake	10-20 mm	chert	very dark gray	10YR 3/1
34	4	broken flake	20-30 mm	chert	black	2.5Y 2.5/1
34	0-20	flake fragment	7.5-10 mm	basalt	dark grayish brown	10YR 4/2
34	10-25	broken flake	10-20 mm	chert	very dark gray	10YR 3/1
34	10-25	flake fragment	10-20 mm	chert	dark gray	2.5Y 4/1
34	10-25	flake fragment	7.5-10 mm	basalt	black	10YR 2/1
34	25-30	flake fragment	10-20 mm	chert	very dark gray	5Y 3/1
34	30-40	flake fragment	10-20 mm	rhyolite	pale yellow	2.5Y 7/4
34	30-40	broken flake	10-20 mm	rhyolite	pale brown	10YR 6/3
34	30-40	broken flake	10-20 mm	rhyolite	very pale brown	10YR 7/3
34	30-40	broken flake	10-20 mm	rhyolite	pale yellow	2.5Y 7/4
34	30-40	flake fragment	10-20 mm	rhyolite	light brownish gray	2.5Y 6/2
34	30-40	flake fragment	7.5-10 mm	rhyolite	light yellowish brown	2.5Y 6/3
34	30-40	flake fragment	10-20 mm	chert	dark gray	2.5Y 4/1
34	38	flake fragment	10-20 mm	chert	dark gray	2.5Y 4/1
34	40-50	debris	10-20 mm	quartz	pale yellow	2.5Y 8/2
35	0-3	flake fragment	7.5-10 mm	rhyolite	dark gray	10YR 4/1
35	0-3	broken flake	10-20 mm	rhyolite	dark gray	10YR 4/1
35	0-3	broken flake	10-20 mm	rhyolite	dark grayish brown	10YR 4/2
35	0-3	flake fragment	10-20 mm	rhyolite	very dark gray	10YR 3/1
35	0-3	flake fragment	10-20 mm	rhyolite	dark grayish brown	10YR 4/2
35	0-3	flake fragment	10-20 mm	rhyolite	dark grayish brown	10YR 4/2
35	0-3	flake fragment	10-20 mm	rhyolite	dark grayish brown	10YR 4/2
35	3-13	flake fragment	7.5-10 mm	rhyolite	dark gray	10YR 4/1
35	13-17	flake fragment	7.5-10 mm	rhyolite	dark gray	10YR 4/1
35	13-17	broken flake	10-20 mm	rhyolite	brown	7.5YR 4/2
35	13-17	flake fragment	10-20 mm	rhyolite	brown	7.5YR 4/2

Test Pit	Depth (cm BS)	Debitage Type	Size Class	Material Type	Color	Munsell Code
35	17-27	flake fragment	10-20 mm	rhyolite	dark gray	7.5YR 4/1
35	17-27	flake fragment	7.5-10 mm	rhyolite	brown	7.5YR 4/2
35	17-27	flake fragment	7.5-10 mm	rhyolite	grayish brn, brn, very pale brn	10YR 5/2, 5/3 & 7/3
35	17-27	debris	10-20 mm	quartz	pale yellow	2.5Y 8/2
35	27-37	flake fragment	7.5-10 mm	rhyolite	dark gray	10YR 4/1
35	50-60	broken flake	10-20 mm	chert	dark gray	2.5Y 4/1
36	0-10	flake fragment	7.5-10 mm	rhyolite	very dark gray	10YR 3/1
36	10-20	flake fragment	>40 mm	chert	gray	2.5Y 6/1
36	10-20	flake fragment	10-20 mm	rhyolite	gray	5YR 5/1
36	22	broken flake	>40 mm	chert	gray	2.5Y 5/1
36	30-40	flake fragment	10-20 mm	chert	light olive brown	2.5Y 5/4
36	30-40	debris	10-20 mm	rhyolite	pale brown	10YR 6/3
36	33	complete flake	20-30 mm	chert	black	2.5Y 2.5/1
37	25-35	flake fragment	10-20 mm	chert	black	2.5Y 2.5/1
37	25-35	flake fragment	10-20 mm	chert	black	2.5Y 2.5/1
37	25-35	flake fragment	10-20 mm	chert	black	2.5Y 2.5/1
37	25-35	debris	10-20 mm	chert	very dark gray	5Y 3/1
37	25-35	flake fragment	10-20 mm	chert	black	2.5Y 2.5/1
37	25-35	flake fragment	10-20 mm	chert	black	2.5Y 2.5/1
37	25-35	broken flake	7.5-10 mm	chert	dark gray	10YR 4/1
37	25-35	flake fragment	7.5-10 mm	chert	very dark gray	5Y 3/1
37	25-35	flake fragment	10-20 mm	chert	black	2.5Y 2.5/1
37	25-35	debris	10-20 mm	rhyolite	light yellowish brown	10YR 6/4
37	25-35	flake fragment	10-20 mm	chert	very dark gray	10YR 3/1
37	35-45	flake fragment	10-20 mm	chert	very dark gray	5Y 3/1
37	45-55	flake fragment	10-20 mm	chert	black	2.5Y 2.5/1
37	45-55	flake fragment	7.5-10 mm	chert	very dark gray	5Y 3/1
38	20-30	broken flake	7.5-10 mm	chert	black	2.5Y 2.5/1
38	40-55	flake fragment	10-20 mm	chert	(transl.) gray	5Y 6/1

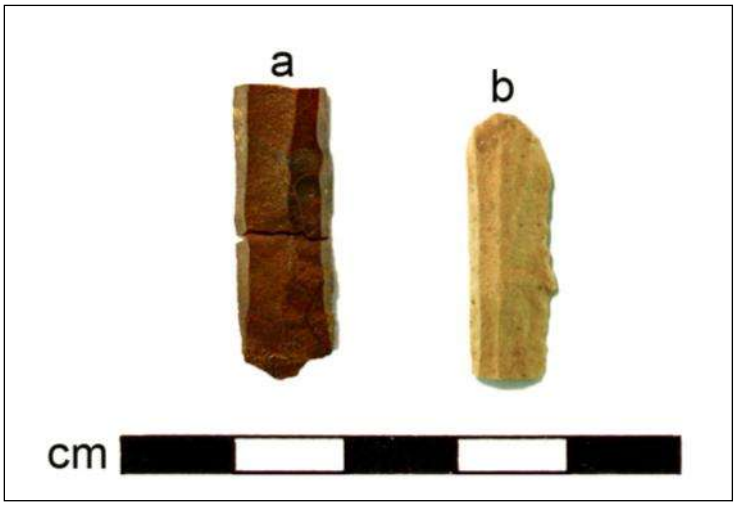

Figure 126. FAI-02018 microblades

Table 5. FAI-02018 microblade attributes

TP	Depth (cm BS)	L (mm)	W (mm)	T (mm)	# of Arrises	Segment	RT	Material Type	Color	Munsell Code
34(a)	10-25	25.3	8.6	1.8	3	distal	N	chert	dark reddish gray	2.5YR 3/1
36(b)	10-20	23.8	7.8	2.1	4	prox	N	rhyolite	light brown	7.5YR 6/3

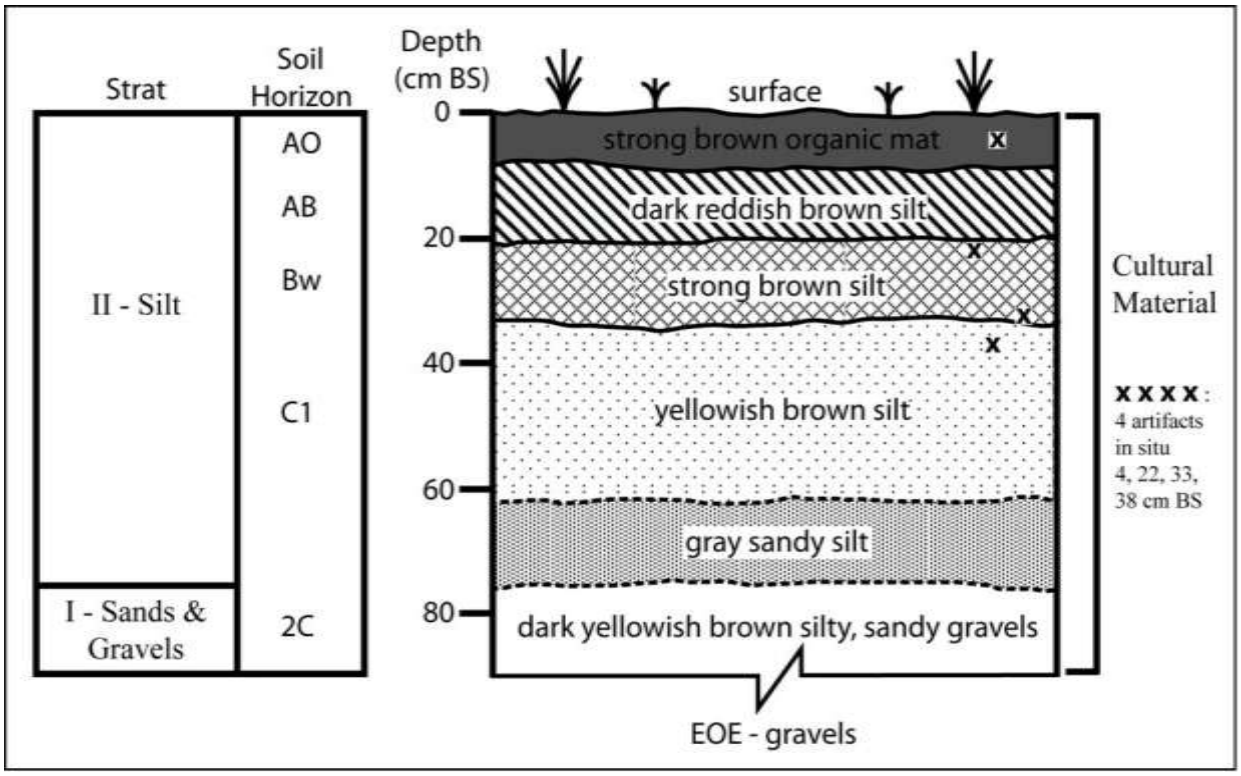

Figure 127. FAI-02018 stratigraphy

FAI-2019
Determination of Eligibility: Not evaluated

Site FAI-02019 is located on a prominent point on a north-south trending terrace edge (Figure 128). Site Elevation is 281 masl. The site area is generally flat while the adjacent terrace slope drops at approximately 15°– 35° roughly 50 m to the flats below. The viewshed is roughly 180° with open views of the Tanana River floodplain and Flag Hill to the east. The ecotype is characterized as upland rocky dry mixed broadleaf/needleleaf forest. The site is populated with mixed willow and alder, immature white spruce and aspen, with an understory of fireweed and bearberries. The nearest source of water is an unnamed stream in the flood plain, roughly paralleling the landform 180 m to the east.

Site FAI-02019 was identified through subsurface testing. Five 50 cm x 50 cm test pits were excavated, two of which were positive. Eight chert flakes (Table 6) and 15 calcined bone fragments were recovered from depths of 0-20 cm BS. One test pit yielded a flake in the screen from an apparent depth of 60-70 cm BS; however, this artifact likely fell from the upper component in the test pit wall. All of the calcined bone fragments were less than 10 mm in diameter—too small for element or species identification.

Site stratigraphy consists of aeolian silts at least 75 cm thick overlying basal gravels (Figure 129). Soil development consists of a strong brown (10YR 2/2) root mat (O horizon) from 0 – 6 cm BS, overlying a reddish brown (5 YR 4/4) silt A horizon from 6 – 15 cm BS. Underlying that

is a dark yellowish brown (10YR 4/4) silt Bw horizon from 15 – 35 cm BS. Unaltered brown (7.5YR 4/4) silt extends from 35 – 40 cm BS, underneath which is yellowish brown (10YR 5/6) silt from 40 – 72 cm BS. The basal unit is coarse gray (10YR 6/1) sandy silt with pebbles and cobbles encountered at 72-75 cm BS.

Table 6. FAI-02019 lithic debitage

Test Pit	Depth (cm BS)	Debitage Type	Size Class	Material Type	Color	Munsell Code
46	65-75	flake fragment	10-20 mm	rhyolite	gray	7.5YR 5/1
50	0-10	flake fragment	7.5-10 mm	rhyolite	dark gray	7.5YR 4/1
50	0-10	flake fragment	7.5-10 mm	rhyolite	dark grayish brown	10YR 4/2
50	0-10	flake fragment	10-20 mm	rhyolite	dark gray	10YR 4/1
50	0-10	flake fragment	5-7.5 mm	rhyolite	gray	7.5YR 5/1
50	0-10	flake fragment	10-20 mm	chert	(transl.) light gray	2.5Y 7/2
50	10-20	flake fragment	7.5-10 mm	rhyolite	dark gray	10YR 4/1
50	10-20	flake fragment	7.5-10 mm	rhyolite	dark gray	7.5YR 4/1

Figure 128. FAI-02019 aerial overview (view to north)

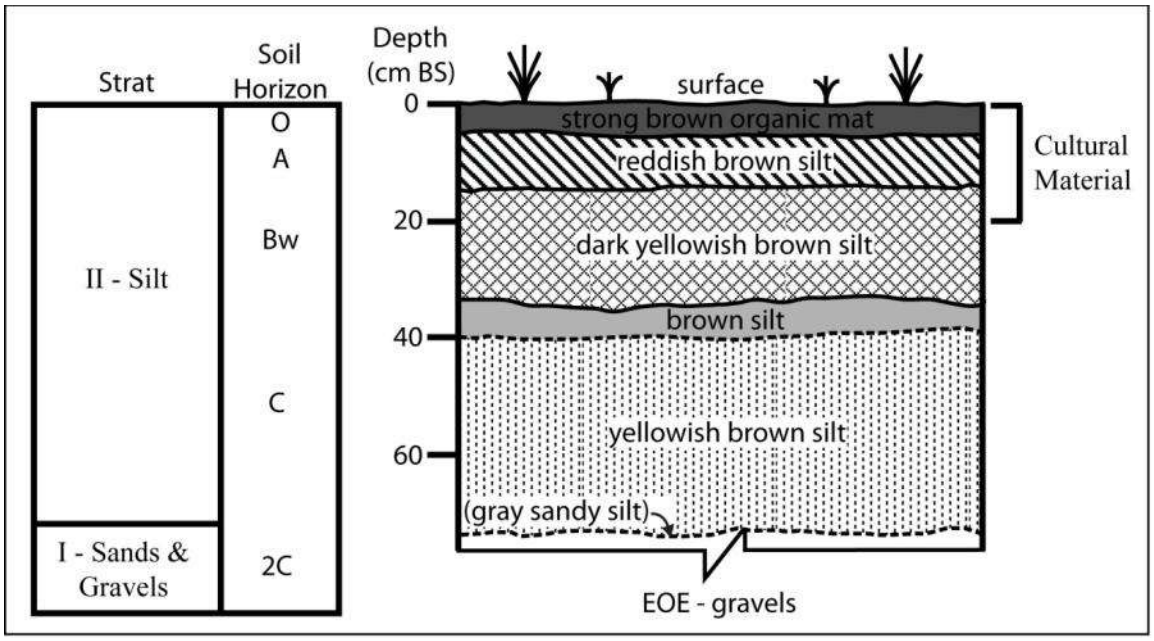

Figure 129. FAI-02019 stratigraphy

Anne Lake

Anne Lake is a 255 acre shallow body of water located roughly 3 km west of the Blair Lakes. It is surrounded on the east, north and south by bedrock ridges and knolls, and to the west by lowland tussock swamps. The Anne Lake shoreline was surveyed by Dixon et al. (1980: 105), however no sites were identified during this time. Given the cluster of known sites on the shoreline of Blair Lake South, the Anne Lake shoreline was identified as a high probability area targeted for archaeological survey during 2009. Aerial reconnaissance of the lake revealed that most of the shoreline consists of flat, very poorly drained terrain, with low potential of containing identifiable cultural resources. Survey efforts focused on a roughly 600 m stretch of shoreline on the northeast shoreline with better drained soils, and the ridge immediately north of the lake. One site was identified in an eroding cutbank exposure on the lakeshore margin; two sites were discovered on the ridge to the north of the lake.

FAI-02003

Determination of Eligibility: Not evaluated

Site FAI-02003 is located on the northern shore of Ann Lake. Site elevation is 245 masl. Site FAI-02003 was identified when lithic artifacts and calcined bone were found eroding out of a low cut bank on the lake shore (Figure 130). The cut bank rises about one m above the lake level. The surrounding area is nearly flat with a slope of 0-2%. The ecosystem is characterized as lacustrine moist low and tall scrub. Vegetation consists of low alders, grasses, forbs, rose hips and cranberries, with scattered small aspen and thick spruce trees.

All of the lithic artifacts are flakestone debitage (

Table 7). The 12 calcined bone fragments recovered were all less than 7 mm diameter—too small for species or element identification; however, their association with lithic artifacts and entirely calcined nature indicate that they are of cultural origin.

Cultural remains were found primarily in eroded debris; however, several artifacts were recovered from an apparently intact stratigraphic sequence revealed when the cut bank was scraped, cleaned and faced. The stratigraphic profile revealed in the cut bank (Figure 130) consists of an organic horizon—grasses and rootlets—at 0-7 cm BS, which is underlain by dark brown silt with some organic material and rootlets from 7-22 cm BS. A dark, silty charcoal lens with some reddish oxidation extends from 22-30 cm BS. This is underlain by dark brown silt with lenses of gray fine to very fine sand and 10-30 % sub-angular pebbles to gravels from 30-70 cm BS. The lowermost unit observed consists of very poorly sorted angular to sub-angular gravels from 70-120 cm BS. Cultural material was encountered in the dark brown silt at depths of 30-50 cm BS (Figure 130).

Table 7. FAI-02003 lithic debitage

Context	Depth (cm BS)	Debitage Type	Size Class	Material Type	color	Munsell Code
eroded debris	N/A	broken flake	30-40 mm	rhyolite	light brownish gray	2.5Y 6/2
eroded debris	N/A	debris	10-20 mm	chert	gray	7.5YR 5/1
eroded debris	N/A	debris	10-20 mm	chert	dark gray	2.5Y 4/1
eroded debris	N/A	flake fragment	20-30 mm	chert	black	10YR 2/1
eroded debris	N/A	flake fragment	10-20 mm	chert	light gray	10YR 7/1
eroded debris	N/A	flake fragment	10-20 mm	chert	light gray	2.5Y 7/2
cut-bank exposure	30-50	complete flake	10-20 mm	rhyolite	light brownish gray	2.5Y 6/2
cut-bank exposure	30-50	flake fragment	10-20 mm	chert	light gray	10YR 7/1
cut-bank exposure	30-50	flake fragment	7.5-10 mm	chert	reddish gray	10R 5/1
cut-bank exposure	30-50	flake fragment	10-20 mm	quartz	white	5Y 8/1
cut-bank exposure	30-50	flake fragment	7.5-10 mm	quartz	white	5Y 8/1
cut-bank exposure	30-50	flake fragment	7.5-10 mm	quartz	white	5Y 8/1

Figure 130. FAI-02003 cut-bank stratigraphy

FAI-02001
Determination of Eligibility: Not evaluated

Site FAI-02001 is located on the crest of an east-west trending ridge several hundred m north of Ann Lake. Site elevation is 282 masl. The crest of the ridge is roughly 50-70 m wide, with a slope of 3-10°. The hill slopes at 15-30° on its north and south sides, dropping 10-20 m to the valley floor below. The ecosystem is characterized as upland dry needleleaf/broadleaf (Figure 131). White spruce grows in thick stands across the site area punctuated by scattered aspens. The understory is comprised of moss, rose-hips, and high and low bush cranberry.

Site FAI-02001 was found through subsurface testing. Cultural material was recovered from two of seven test pits excavated. Two chert flakes, three basalt flakes and one obsidian flake were recovered from depths of 20-40 cm BS (Table 8). The obsidian flake has been sourced via XRF elemental analysis to the Batza Tena source on the Koyukuk River more than 400 km to the north (Appendix 1). Nine fragments of calcined bone were found at depths of 0-10 cm BS. All of these measure between 2-7 mm in diameter—too small for species or element identification. There is a 10 cm vertical separation between the faunal remains and lithic artifacts. The calcined

bone fragments were found close to the surface and would have been subjected to high heat from local forest fires. Given these issues, it remains uncertain if the faunal remains are of a cultural origin.

Table 8. FAI-02001 lithic Debitage

TP	Depth (cm BS)	Debitage Type	Size Class	Material Type	Color	Munsell Code
7	35-45	broken flake	10-20 mm	basalt	dark gray	2.5Y 4/1
7	35-45	debris	10-20 mm	chert	very dark gray	2.5Y 3/1
8	20-30	flake fragment	10-20 mm	chert	very dark gray	10YR 3/1
8	20-30	flake fragment	5-7.5 mm	basalt	dark gray	2.5Y 4/1
8	20-30	flake fragment	20-30 mm	basalt	very dark gray	10YR 3/1
8	20-30	broken flake	20-30 mm	obsidian	black translucent	N/A-translucent

Site stratigraphy consists of aeolian silts 45-70 cm thick, disconformably overlying decomposing schist bedrock (Figure 132). Soil development consists of a dark brown organic mat at 0-4 cm BS, with a brown silt A horizon at 4-7 cm BS, and an underlying reddish silt Bw horizon at 7-12 cm BS. Prominent, dark reddish brown, iron and clay-rich braided lamellae (Ab1 horizon) are present at the base of the Btw horizon at depths varying from 20-50 cm BS. Unaltered yellow silts (C horizon) occur at depths of 12-70 cm BS.

Figure 131. FAI-02001 overview (view to east)

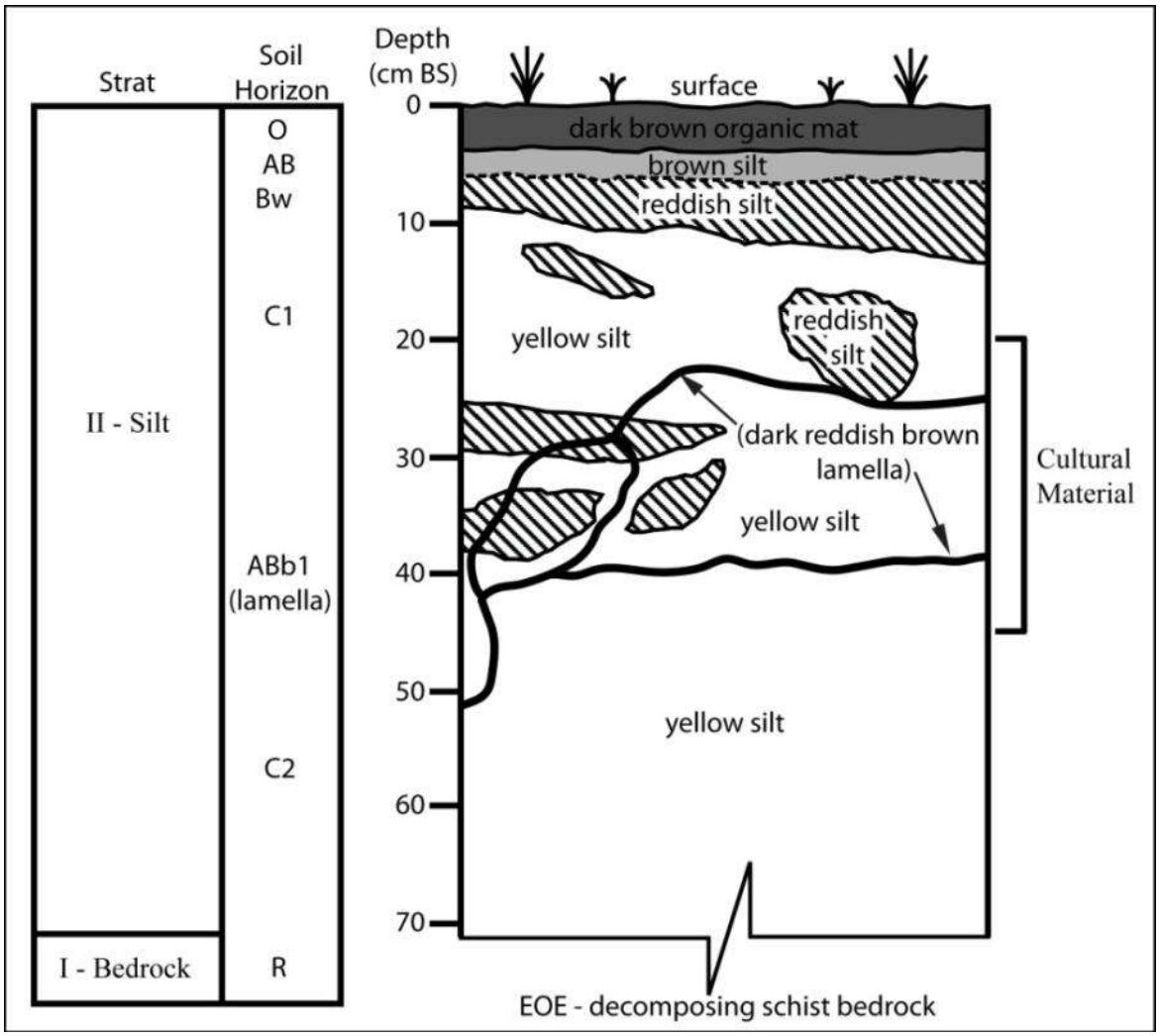

Figure 132. FAI-02001 stratigraphy

FAI-02002
Determination of Eligibility: Not evaluated

Site FAI-02002 is located on a knob in the central portions of an east-west trending ridge several hundred m north of Ann Lake. Site elevation is 289 masl. The crest of the knob is roughly 40-50 m wide, with a slope of 3-10°. The knob and surrounding ridge slope at 15-30° on north and south sides, dropping 15-25 m to the valley floor below. The ecosystem is characterized as upland dry mixed needleleaf/broadleaf (Figure 133). Vegetation consists of white spruce and aspen with an understory comprised of moss, rose-hips, and high and low bush cranberry.

Site FAI-2002 was found through subsurface testing. Cultural material (Table 9) was recovered from one of seven test pits excavated. Ten basalt flakes were recovered from depths of 10-37 cm BS, and a large quartz cobble—evidently a manuport—was found at 7-16 cm BS.

Site stratigraphy consists of aeolian silts 45-70 cm thick overlying decomposing schist bedrock (Figure 134). Soil development consists of a dark brown organic mat at 0-5 cm BS underlain by a gray ash layer at 5-7 cm BS. A brown silt A horizon is at 7-10 cm BS. Underlying this is a reddish silt Bw horizon at 10-20 cm BS. Prominent, dark reddish brown, iron and clay-rich braided lamellae (Ab1 horizon) are present at the base of the Bw horizon at depths varying from 20-35 cm BS. Unaltered yellow silts (C horizon) are underlain by decomposing schist bedrock at depths of 30-50 cm BS.

Table 9. FAI-02002 lithic debitage

TP	Depth (cm BS)	Debitage Type	Size Class	Material Type	Color	Munsell Code
15	10-20	flake fragment	20-30 mm	basalt	dark gray	5Y 4/1
15	10-20	flake fragment	10-20 mm	basalt	dark gray	5Y 4/1
15	10-20	flake fragment	10-20 mm	basalt	dark gray	5Y 4/1
15	20-30	flake fragment	10-20 mm	basalt	dark gray	5Y 4/1
15	20-30	flake fragment	7.5-10 mm	basalt	dark gray	5Y 4/1
15	25-35	flake fragment	7.5-10 mm	basalt	dark gray	5Y 4/1
15	25-35	broken flake	10-20 mm	basalt	dark gray	5Y 4/1
15	25-35	broken flake	20-30 mm	basalt	dark gray	5Y 4/1
15	25-37	broken flake	20-30 mm	basalt	dark gray	5Y 4/1
15	25-37	flake fragment	10-20 mm	basalt	dark gray	5Y 4/1
15	7-16	cobble	>40 mm	quartz	white	5Y 8/1

Figure 133. FAI-02002 overview (view to east)

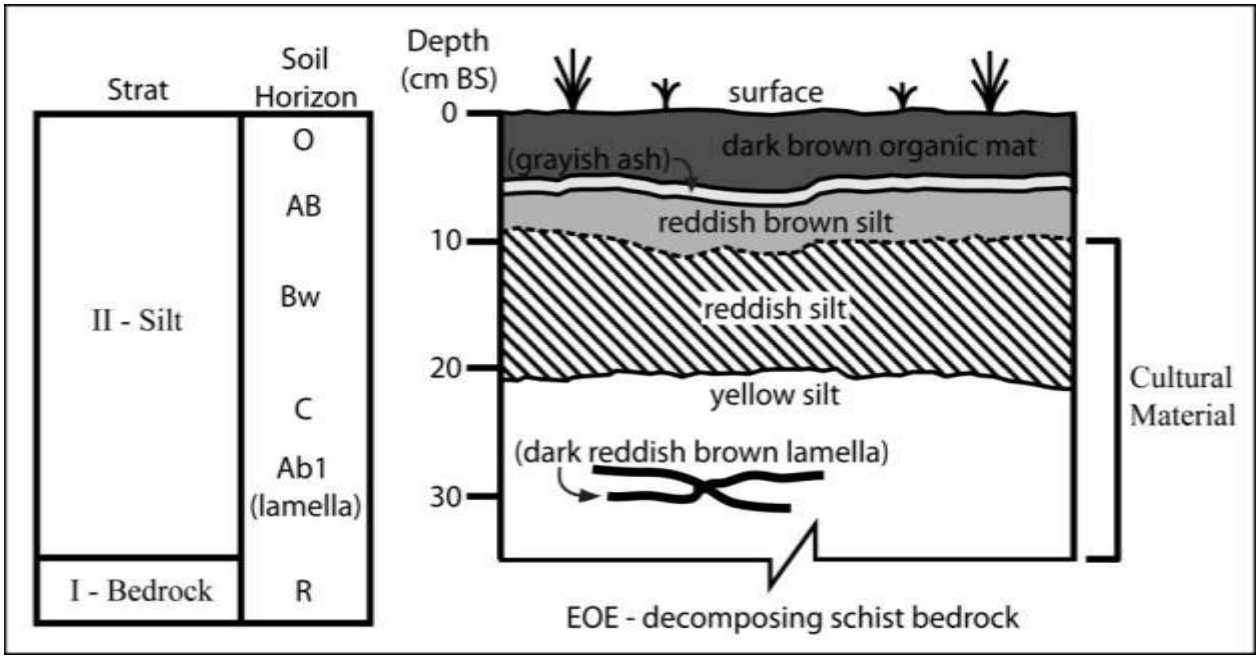

Figure 134. FAI-2002 stratigraphy

Blair Lakes Highlands

The hills and ridges in the Blair Lakes vicinity contain the highest point in the TFTA. Along with Clear Creek Butte and Wood River Butte, these uplands are among the most topographically dominant features in the Tanana Flats. In contrast to both Wood River Buttes and Clear Creek Buttes, both of which contain abundant archaeological sites and NRHP-listed archaeological districts, the Blair Lakes hills only contain a few reported archaeological sites. During 2009, our sampling strategy selected numerous high-probability areas for subsurface testing in order to get a better understanding of the potential of these uplands area to contain cultural resources; however, time constraints and unforeseen field emergencies allowed for testing only one of these locations. This effort identified prehistoric site FAI-01998.

FAI-01998

Determination of Eligibility: Not evaluated

Site FAI-01998 is located on the crest of an isolated hill north of Blair Lakes. Site elevation is 256 masl. The crest of the hill is roughly 40-60 m in diameter, with a slope 0-4°. The hill slopes at 4-15° on all sides, dropping 40-50 m to the valley floor below. The location provides a 360º view shed, with commanding views of the flats and valley to the north and east, and the hills surrounding Blair Lakes to the south. The ecosystem is characterized as upland dry, mixed needleleaf/ broadleaf. Site vegetation primarily consists of aspen, with scattered white spruce, and an understory of alder, high-bush cranberry, and grasses.

Site FAI-01998 was found through subsurface testing. Cultural material was recovered from each of the six test pits excavated. In total, 68 lithic artifacts were recovered from depths of 170 cm BS. Most of these are classified as lithic debitage (Table 10); however, the assemblage also includes one bifacial core (Figure 135), one retouched flake (Figure 136) and two microblades (Figure 137). AMS radiocarbon dating of stratigraphic charcoal directly associated with the retouched flake yielded an uncalibrated date of 3270 ± 40 BP (Beta-271218)

The bifacial core was found at a depth of 67 cm BS. It was constructed on a dark grey (5 Y4/1) chert cobble and retains rounded, polished cortex over roughly ¼ of its total surface. Large hard-hammer flake scars are evident on both faces. The artifact has a maximum length of 110.8 mm, a maximum width of 53.2 mm, and a maximum thickness of 34.1 mm. The retouched flake was found in situ at a depth of 32 cm BS. It is a broken flake, size class 30-40 mm, with fine sub-parallel retouch along 31.8 mm of one margin. Both microblades were screen finds from a single test pit from a depth of 50-60 cm BS. The first of these (Figure 137 a) is a complete olive gray (5Y 5/2) chert microblade 23.6 mm long, 5.4 mm wide, and 2.5 mm thick. The second (Figure 137 b) is distal fragment, found in three re-fittable pieces, made of brown (7.5 YR 5/3) rhyolite, and measuring 18.3 mm long, 4.1 mm wide, and 1.2 mm thick. Neither microblade displays any secondary modification, retouch or use damage.

Site stratigraphy consists of aeolian silts 50-80 cm thick disconformably overlying decomposing schist bedrock (Figure 138). Soil development consists of a dark brown organic mat at 0-5 cm BS, with a brown silt A horizon at 5-10 cm BS, and an underlying reddish silt Bw horizon at 10-23 cm BS. A prominent, dark reddish brown, iron and clay-rich braided lamella (Ab1 horizon) is

present at the base of the Bw horizon at depths varying from 20-40 cm BS. The underlying yellow silts (C horizon) are punctuated by a reddish silt Bwb2 horizon at roughly 40-50 cm BS.

Table 10. FAI-01998 lithic debitage

TP	Depth (cm BS)	Debitage Type	Size Class	Material Type	Color	Munsell Code
1	15-30	broken flake	10-20 mm	chert	very dark gray	10YR 3/1
1	15-30	debris	10-20 mm	rhyolite	brown	7.5YR 5/4
1	40-50	flake fragment	20-30 mm	basalt	dark gray	5Y 4/1
1	40-50	flake fragment	10-20 mm	basalt	dark gray	2.5Y 4/1
1	40-50	complete flake	10-20 mm	rhyolite	grayish brown	10YR 5/2
1	40-50	broken flake	10-20 mm	chert	olive gray	5Y 5/2
1	40-50	complete flake	7.5-10 mm	chert	olive gray	5Y 5/2
1	40-50	broken flake	10-20 mm	chert	gray	5Y 5/1
1	40-50	flake fragment	10-20 mm	chert	gray	5Y 5/1
1	50-60	flake fragment	10-20 mm	basalt	dark gray	10YR 4/1
1	50-60	complete flake	7.5-10 mm	chert	gray	5Y 5/1
1	63	flake fragment	10-20 mm	basalt	dark gray	10YR 4/1
1	68	broken flake	10-20 mm	basalt	dark gray	10YR 4/1
2	20-30	flake fragment	10-20 mm	rhyolite	light yellow brown	10YR 6/4
2	20-30	flake fragment	10-20 mm	rhyolite	light brown	7.5YR 6/4
2	30-40	flake fragment	10-20 mm	basalt	dark gray	10YR 4/1
2	30-40	flake fragment	10-20 mm	rhyolite	very pale brown	10YR 7/3
2	30-40	flake fragment	7.5-10 mm	rhyolite	light brown	7.5YR 6/3
2	30-40	flake fragment	10-20 mm	rhyolite	gray	7.5YR 6/1
2	30-40	broken flake	10-20 mm	rhyolite	gray	7.5YR 6/1
2	30-40	flake fragment	7.5-10 mm	rhyolite	light gray	10YR 7/2
2	30-40	flake fragment	7.5-10 mm	rhyolite	light brown	7.5YR 6/4
2	30-40	flake fragment	10-20 mm	rhyolite	light gray	10YR 7/2
2	40-50	broken flake	10-20 mm	rhyolite	very pale brown	10YR 7/4
2	40-50	flake fragment	7.5-10 mm	rhyolite	light gray	10YR 7/1
2	40-50	flake fragment	7.5-10 mm	rhyolite	light yellow brown	10YR 6/4
2	40-50	flake fragment	7.5-10 mm	rhyolite	gray	10YR 6/1
2	40-50	flake fragment	10-20 mm	rhyolite	light gray	10YR 7/1
2	40-50	flake fragment	10-20 mm	rhyolite	light gray	10YR 7/1
2	40-50	flake fragment	10-20 mm	rhyolite	gray	10YR 6/1
2	40-50	flake fragment	10-20 mm	rhyolite	gray	10YR 6/1
2	40-50	flake fragment	10-20 mm	rhyolite	light gray	10YR 7/1
2	40-50	flake fragment	10-20 mm	rhyolite	light brown	7.5YR 6/4
2	40-50	flake fragment	10-20 mm	basalt	dark gray	7.5YR 4/1
2	40-50	flake fragment	10-20 mm	chert	very dark gray	10YR 3/1
2	50-60	flake fragment	10-20 mm	rhyolite	gray	10YR 6/1
2	50-60	flake fragment	10-20 mm	rhyolite	gray	10YR 5/1
2	50-60	flake fragment	7.5-10 mm	rhyolite	gray	10YR 5/1
2	50-60	flake fragment	7.5-10 mm	rhyolite	light gray	10YR 7/1
2	50-60	flake fragment	7.5-10 mm	rhyolite	light gray	10YR 7/1
2	50-60	flake fragment	10-20 mm	basalt	very dark gray	10YR 3/1
2	50-60	broken flake	10-20 mm	basalt	very dark gray	10YR 3/1
2	50-60	flake fragment	10-20 mm	quartz	white	2.5Y 8/1
2	50-60	flake fragment	10-20 mm	chert	very dark gray	7.5YR 3/1
2	50-60	flake fragment	10-20 mm	chert	translucent/gray stripes	N/A
2	60-70	complete flake	10-20 mm	rhyolite	light brown	7.5YR 6/3
2	60-70	flake fragment	10-20 mm	rhyolite	very pale brown	10YR 7/3
2	60-70	broken flake	7.5-10 mm	chert	dark gray	2.5Y 4/1
3	25-30	flake fragment	7.5-10 mm	rhyolite	light brown	7.5YR 6/3
3	25-30	broken flake	10-20 mm	rhyolite	light brown	7.5YR 6/3
3	35-40	flake fragment	7.5-10 mm	chert	very dark gray	10YR 3/1
3	35-40	flake fragment	10-20 mm	chert	brown	7.5YR 5/4
3	45-50	flake fragment	10-20 mm	chert	very dark gray	10YR 3/1
4	30-35	flake fragment	20-30 mm	basalt	black	10YR 2/1
4	30-35	broken flake	10-20 mm	chert	dark gray	2.5Y 4/1
4	40-45	flake fragment	20-30 mm	basalt	black	10YR 2/1

TP	Depth (cm BS)	Debitage Type	Size Class	Material Type	Color	Munsell Code
5	40-50	flake fragment	10-20 mm	chert	very dark gray	10YR 3/1
6	20-25	complete flake	10-20 mm	chert	very dark gray	10YR 3/1
6	35-40	broken flake	10-20 mm	chert	pale brown & dark gray	10YR 7/3 & 2.5Y 4/1
6	33	flake fragment	20-30 mm	chert	olive gray	5Y 4/2
6	40-50	flake fragment	10-20 mm	chert	olive gray	5Y 4/2
6	40-50	flake fragment	10-20 mm	chert	light olive gray	5Y 6/2
6	40-50	flake fragment	5-7.5 mm	chert	olive gray	5Y 4/2
6	40-50	debris	20-30 mm	chert	very dark gray	10YR 3/1

Figure 135. FAI-01998 bifacial core

Figure 136. FAI-01998 retouched flake

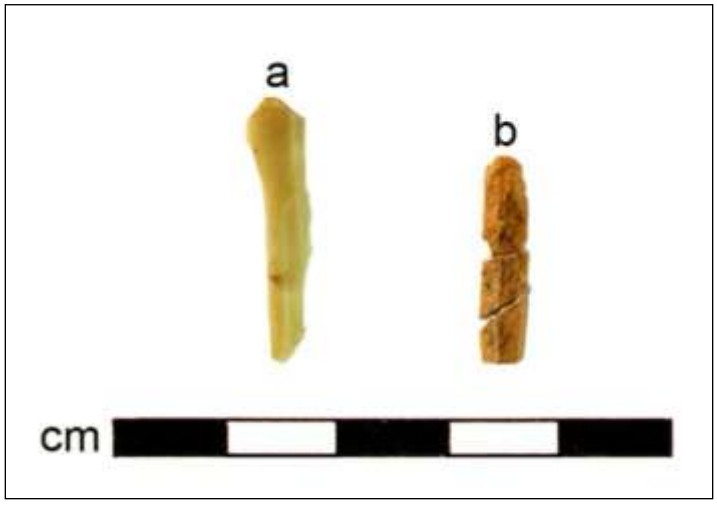

Figure 137. FAI-01998 microblades

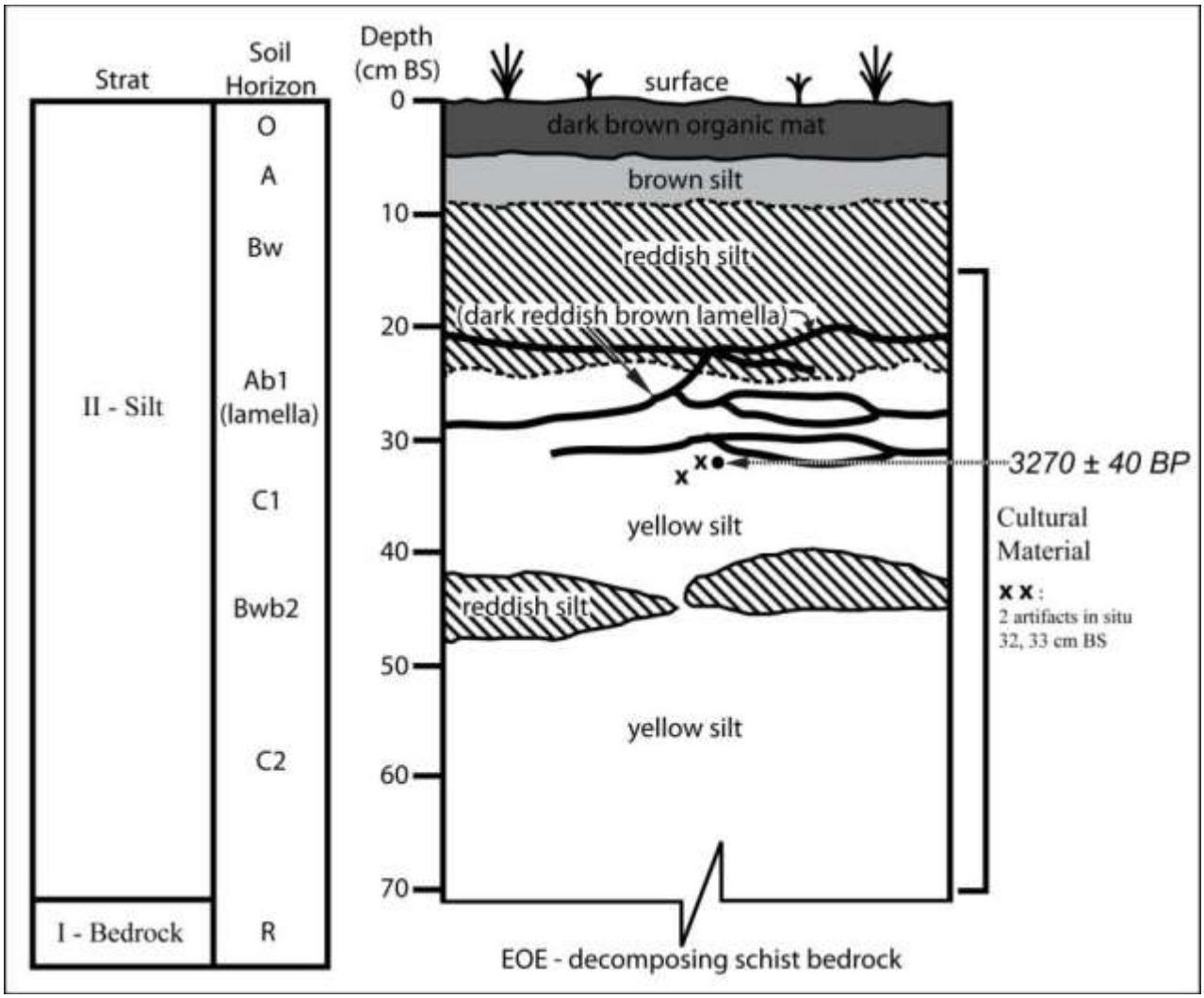

Figure 138. FAI-01998 stratigraphy

Summary and Recommendations

A total of eight prehistoric archaeological sites were identified in the vicinity of the Blair Lakes during 2009. All except one of these are intact buried sites, with demonstrated integrity, and undisturbed stratigraphy. All of these can yield data for addressing a number of important regional questions, and can provide significant information pertaining to the prehistory of interior Alaska. They are all potentially eligible for inclusion in the NRHP. If development is planned that will include any portion of these sites, application of 36CFR800.5 indicates a finding of "historic properties affects." These sites will be avoided through design modification whenever possible. If avoidance is not feasible, consultation with the State Historic Preservation Officer (SHPO) and interested Tribal governments will ensue to identify appropriate mitigation measures, prior to the advent of any future construction.

It should be noted that the field efforts conducted during 2009 represent initial reconnaissance and a judgmental sample survey of the Blair Lakes area. The overwhelming majority of the

Blair Lakes area remains un-surveyed. The recent efforts should not be construed as representing a systematic effort sufficient to meet Section 106 NHPA considerations, or satisfy historic property identification efforts stipulated in 36CFR800.4. In order to meet these legal requirements, full-coverage, systematic archaeological survey of project areas must be factored into future range development plans. This point is underscored by the high number of known sites in the area, and density of archaeological remains identified as part of the recent survey. The sample of sites obtained as part of these efforts demonstrates the likelihood of a large number of additional significant archaeological sites in the area.

4.3 Blair Lakes Archaeological District (FAI-00335)

The Blair Lakes Archaeological District consists of six archaeological sites located on the north shore of Blair Lakes South. Four of these sites—FAI-00044, FAI-00045, FAI-00048, and FAI-00049—are prehistoric sites yielding flakestone artifacts and faunal remains from a buried context. Two of the sites—FAI-00046, and FAI-00054—are log cabin remains, and cache pit features and early 20th Century artifacts associated with the late 1930's Walter "Tex" Blair homestead. The boundaries of sites FAI-00045 and FAI-00046 overlap; FAI-00046 is the historic component related to Tex Blair's homestead, while FAI-00045 is a prehistoric component consisting of lithic artifacts and faunal remains. At the time of the investigation, Dixon et al. (1980: 116-119) assigned two different site numbers to what is essentially a multi-component site.

The Blair Lakes archaeological sites were nominated as constituting an NRHP Archaeological District during 1985 by the Alaska Heritage Resource Group as significant under two NRHP eligibility criteria: Criteria B and Criteria D.

In terms of NRHP Criteria B, the historic sites within the district—sites FAI-00045 and FAI-00054—are associated with the life of a the life of an individual prominent in Alaska history. The historic component at the Blair Lakes Archaeological District documents a homestead established by Walter "Tex" Blair in the late 1930's. The homestead was one of the few in the central portions of the Tanana Valley, and the only one in the Blair Lakes vicinity.

The prehistoric sites in the district—FAI-00044, FAI-00046, FAI-00048, and FAI-00049— are significant under NRHP Criteria D in that they have provided, and are likely to further provide, valuable information on both the prehistory of the Tanana Valley and interior Alaska. The prehistoric components at the Blair Lakes are affiliated with the Denali, and Northern Archaic traditions with a potential late prehistoric occupation (Dixon et al. 1980). The Denali complex is represented by microblades, microblade cores, and burin spalls. Evidence for a Northern Archaic occupation is present in the form of lanceolate and side-notched points. A radiocarbon date of 1820 ± 70 BP from site FAI-00045 is later than the accepted temporal limits of the Northern Archaic, and possibly represents a late prehistoric Athabaskan occupation.

2008 & 2009 Field Methods

The Blair Lakes Archaeological District was visited by two Colorado State University CEMML archaeologists under the supervision of Edmund Gaines, M.A., R.P.A. during July 29-30, 2008 and on August 6, 2009. The purpose of these visits was to relocate and assess the condition of the sites that constitute the archaeological district. Visual surface inspection consisted of pedestrian transects of the reported site areas. In addition, we conducted a systematic survey of the shallow water within a few m of the lakeshore.

Results

The landscape comprising the Blair Lakes Archaeological District has changed significantly since the time of 1979 investigation. Dixon et al. (1980) report extensive evidence of military

training activities, and concomitant loss of vegetation and erosion. Land-based military training exercises in the area were terminated in the early 1980's, and recreational activities are the only type of recent human use of the area. The reported locations for the sites that comprise the district were found to be heavily overgrown with very thick brush. This vegetation consists of alder, rose hips, willows, dwarf birch, birch and spruce trees. The heavy vegetation hindered field efforts to a certain extent; however, our investigation relocated all of the sites comprising the district and documented their current conditions:

FAI-00044

Site FAI-00044 was originally identified by Dixon et al. (1980) in an eroding cut bank located 3 m from the present shoreline of Blair Lake South. At the time of site discovery, four lithic artifacts, including one microblade core, and one unifacially retouched rhyolite blade-like flake, were found on the surface, having recently eroded out of the cut bank exposure. Phase II testing conducted during the same investigation recovered 223 lithic artifacts from a buried context. Most of this is lithic debitage; formal tools among the assemblage included "one bifacially worked black chert knife fragment" (Dixon et al. 1980: 108), two rhyolite microblade cores, two core tablets, a total of 25 microblades and microblade fragments, one chert and two chalcedony burin spalls. Their investigation also recovered 10 fire cracked rocks, and hundreds of faunal fragments, most of them burnt and calcined. Identifiable remains in the faunal assemblage include a snowshoe hare phalange distal fragment, a distal fragment of a phalange likely from a moose or bear, a humerus head from a snowshoe hare, a canid carpal, five large mammal long bone fragments, and one small mammal long bone fragment.

The recovered assemblage indicates multiple activities on the part of the site's prehistoric inhabitants. The numerous flakes and tools are evidence of intensive artifact manufacture and maintenance. The presence of fire cracked rock and faunal remains suggest a period of occupation longer than just a short-term stopover related to a single event. The site likely served as a camp, or perhaps a village.

An affiliation with the Denali complex was postulated on the basis of microblade technology and burin spalls. Depth of material recovered and its relation to the present lake shore, which has fluctuated over time, was thought at the time to suggest that the site was affiliated with the "late phase" of the Denali Complex.

Dixon et al. (1980: 109) were explicit that they had not clearly defined the site's boundaries and that further testing above their Phase II evaluations would be necessary to establish the site's spatial limits. They were also clear that the separation of individual prehistoric sites along the north shore of Blair Lakes south was probably a sampling issue and it is likely that the four individual sites defined, in fact, represent one extensive, continuous, multi-component site.

At the time of the 1979 investigation, the site was reportedly being impacted by military training and natural lakeshore erosion.

2008/2009 Site Condition and Recommendations

The site was relocated based on Dixon et al.'s (1980) description of the area; however the metal tags reportedly left in place during Phase II investigations were not found, probably due to thick vegetation and ground cover. The coordinate information given at the beginning of this section is the most up to date and accurate. The site was found to be in fair to good condition. The erosional cut bank described during site discovery by Dixon et al. (1980) has stabilized and is now heavily vegetated (Figure 139). Military training has ceased in the vicinity and there were no observed impacts from any type of recent human use of the area. Presently, the primary potential threat to the site seems to be from lake shore erosion. Two years of repeated site visits, however, identified no observable change in lakeshore condition. The site should be subjected to annual monitoring to continue to assess the effect of lakeshore erosion, if any, on the site

Numerous lithic artifacts were collected from the shallow water in the vicinity of FAI-00044; however, they are from a nearly continuous artifact scatter in a disturbed context and cannot be positively identified as to what site they are from. This shallow water collection will be described and discussed in a following section.

Figure 139. FAI-00044 overview (view to north)

FAI-00045

Site FAI-00045 was originally identified by Dixon et al. (1980) in an eroding cutbank 6 m north and 4 m above the shoreline of Blair Lake South. Dixon et al.'s (1980) phase II evaluations produced 161 lithic artifacts from a buried context. Tool forms among the assemblage include three end scrapers, one burin spall, one projectile point basal fragment, two bifacial tool one of which might be a knife or projectile point, and eight flake tools. The site also produced hundreds of burnt and calcined bone fragments. Most of these were too small for species or element identification; however, some are recognizable as large mammal long bone fragments, and several fragments fit together and are caribou metacarpal or metatarsal. One of the fragments had five identifiable cut marks; however, microscopic examination did not reveal the type of tool used.

Dixon et al. (1980: 114) recognize typological similarities between the projectile point fragment and projectile point styles affiliated with the Northern Archaic Tradition. One radiocarbon date obtained from stratigraphic charcoal yielded an age of 1820 ± 70 BP. This might indicated a late persistence of the Northern Archaic Tradition, or it might indicate an Athabaskan affiliation for the site.

Phase II testing demonstrated that the site extends at least 15 m from the lakeshore; however Dixon et al. (1980: 114) state that this is a tentative conclusion and that further testing is required to firmly establish the site's boundaries. Dixon et al. (1980: 114) identified impacts to the site from both military training and historic homesteading.

2008/2009 Site Condition and Recommendations

The site was relocated based on Dixon et al.'s (1980) description. The coordinate information given at the beginning of this section is the most up to date and accurate. The site was found to be in fair to good condition. The erosional cut bank described by Dixon et al. (1980) during site discovery has stabilized and is now heavily vegetated (Figure 139). Military training has ceased in the vicinity and there were no observed impacts from any type of recent human use of the area. Currently, the main potential threat to the site seems to be from possible lake shore erosion. Two years of repeated site visits, however, identified no observable change in lakeshore condition. The site should be subjected to annual monitoring to continue to assess the effect of lakeshore erosion, if any, on the site.

Numerous lithic artifacts were collected from the shallow water in the vicinity of FAI-00045; however, they are from a nearly continuous artifact scatter in a disturbed context and cannot be positively identified as to what site they are from. The shallow water collection will be described and discussed in a following section.

Figure 140. FAI-00045 overview (view to south)

FAI-00046

Site FAI-00046 consists of the burnt remains of a 7 m x 6 m log structure, a 1.5 m x 1 m x .75 pit feature, and associated early 20th debris including bricks, glass fragments, asphalt shingles, metal light fixtures, windowscreen, sections of stove pipe, nails, and other metal debris. The pit feature reportedly contained several metal cans. At the time of site discovery in 1979, remains of the original logs used in the structure were preserved only in the south wall.

The site represents historic use of the area by "Tex" Blair. Archival research revealed the Mr. Blair applied for a manufacturing claim in the same area the site was found and that he was in the area as early as 1938 (Dixon et al. 1980: 118).

Site boundaries overlap with prehistoric site FAI-00045; however, the sites were given separate numbers in order to avoid confusion (Dixon et al. 1980).

2008/2009 Site Condition and Recommendations

The site was relocated based on Dixon et al.'s (1980) description. The coordinate information given at the beginning of this section is the most up to date and accurate. The site was found to be in fair to good condition. Our investigation found the pit (Figure 142) described by Dixon et al. (1908: 118-119), as well as metal and glass debris. Several of these artifacts, such as sections of stove pipe, match the site description given by Dixon et al. (1980: 118). The burnt log

structure remains, however, were not found. The area is heavily vegetated (Figure 141), and it is possible this obscured any surviving remains. During 1979 the burnt log remains were only apparent on the south wall (Dixon et al. 1980: 118). It is possible that erosion and other impacts over the past 30 years degraded the cabin remains beyond recognition. Military training has ceased in the vicinity and there were no observed impacts from any type of recent human use of the area.

Figure 141. FAI-00046 overview (view to north)

Figure 142. FAI-00046 pit feature with associated metal cans and wooden debris

FAI-00048

Dixon et al. (1980) identified site FAI-00048 in a cutbank 4 m north and 3 m above the north shoreline of Blair Lake South. The site consists of six flakes, one of which is retouched, and 14 burnt and calcined bone fragments found in the surface of the cutbank exposure. The bone fragments are too small for species identification, but they are recognizable as long bone fragments from medium to large mammals. Fire cracked rocks and cobbles were also noted in the exposure, but were left in place.

Only one test pit was excavated during an ostensible Phase II investigation, yielding no cultural material. Dixon et al. (1980: 124) are clear that this limited sampling is insufficient to determine site boundaries and presence of buried remains.

2008/2009 Site Condition and Recommendations

The site was relocated based on Dixon et al.'s (1980) description. The coordinate information given at the beginning of this section is the most up to date and accurate. The site was found to be in fair to good condition. The erosional cut bank described by Dixon et al. (1980) during site discovery has begun to stabilize and is in the initial phases of revegetation (Figure 143). Military training has ceased in the vicinity and there were no observed impacts from any type of recent human use of the area. Presently, the primary threat to the site seems to be from continued lake shore erosion. Two years of repeated observation, however, indicate very slow rates of erosion,

with no observable change. The site should be subjected to annual monitoring to continue to assess the effect of lakeshore erosion on the site.

Numerous lithic artifacts were collected from the shallow water in the vicinity of FAI-00048; however, they are from a nearly continuous artifact scatter in a disturbed context and cannot be positively identified as to what site they are from. The shallow water collection will be described and discussed in a following section.

Figure 143. FAI-00048 overview (view to southwest)

FAI-00049

Dixon et al. (1980) discovered site FAI-00049 in a cutbank 4 m above and 2 m north of the north shoreline of Blair Lake South. The site consists of three flakes found on the surface of the cutbank exposure. No subsurface testing or Phase II evaluations were conducted.

2008/2009 Site Condition and Recommendations

The site was relocated based on Dixon et al.'s (1980) description of the area. The coordinate information given at the beginning of this section is the most up to date and accurate. The site was found to be in fair to good condition. The erosional cut bank described by Dixon et al. (1980) has stabilized and currently exhibits thick vegetation (Figure 144). Military training has ceased in the vicinity and there were no observed impacts from any type of recent human use of

the area. Presently, the primary threat to the site seems to be from continued lake shore erosion. Two years of repeated observation, however, indicate very slow rates of erosion, with no observable change. The site should be subjected to annual monitoring to continue to assess the effect of lakeshore erosion on the site.

Numerous lithic artifacts were collected from the shallow water in the vicinity of FAI-00049; however, they are from a nearly continuous artifact scatter in a disturbed context and cannot be positively identified as to what site they are from. The shallow water collection will be described and discussed in a following section.

Figure 144. FAI-00049 site location overview (view to southeast)

FAI-00054

Site FAI-00054 consists of the burnt remains of two log structures, a log cache, and associated early 20th Century artifacts including porcelain fragments and tiles, a metal drill press, metal sections of stove pipe, and other metal debris.

The site represents historic use of the area by "Tex" Blair. Archival research revealed the Mr. Blair applied for a manufacturing claim in the vicinity. Mr. Blair's use of the area began as early as 1938 (Dixon et al. 1980: 142).

2008/2009 Site Condition and Recommendations

The site was relocated based on Dixon et al.'s (1980) description of the area. The coordinate information given at the beginning of this section is the most up to date and accurate. The area is heavily vegetated (Figure 145) We relocated historical debris associated with site FAI-00054, including the drill press (Figure 147; Figure 148), berm features, burnt cache poles (Figure 146), metal debris, milled wood ,bricks and porcelain fragments reported by Dixon et al. (1980: 142-143, 350). In general, the site was found to be in fair condition. Military training has ceased in the vicinity and there were no observed impacts from recent human use of the area.

Figure 145. FAI-00054 overview (view to east)

Figure 146. FAI-00054 cache support pole (see Dixon et al. 1980: 141, view to north)

Figure 147. FAI-00054 drill press 1979 (from Dixon et al. 1980: 350)

Figure 148. FAI-00054 drill press 2009

Additional Findings

During the initial site visit, while navigating difficult lakeshore terrain, a large rhyolite biface was discovered in the shallow water near the lake margin (Figure 149; Figure 150). Subsequent surveys conducted during both 2008 and 2009 revealed the presence of numerous lithic artifacts and calcined bone fragments diffusely scattered in the shallow water along the shoreline. Judgmental collection of artifacts focused on tool forms and large, obvious pieces of lithic debitage. A total of 117 lithic artifacts were collected including: lithic debitage (Table 11); scrapers (Figure 151: Figure 152; Table 12) bifaces (Figure 153; Table 14), projectile points (Figure 154; Table 15) microblade cores (Figure 156;
Table 16), retouched flakes (Table 13), and one burin (Figure 155). Many exhibited extensive rounding and polishing as a result of substantial time in the water (e.g. Figure 152 a-d; Figure 156 b). This extensive weathering obscured flakes scars and in many cases (e.g. microblade core shown in Figure 156 b) prevented analysis of metric attributes.

Figure 149. Discovering artifacts in shallow water at FAI-00335

Figure 150. FAI-00335 rhyolite biface under water

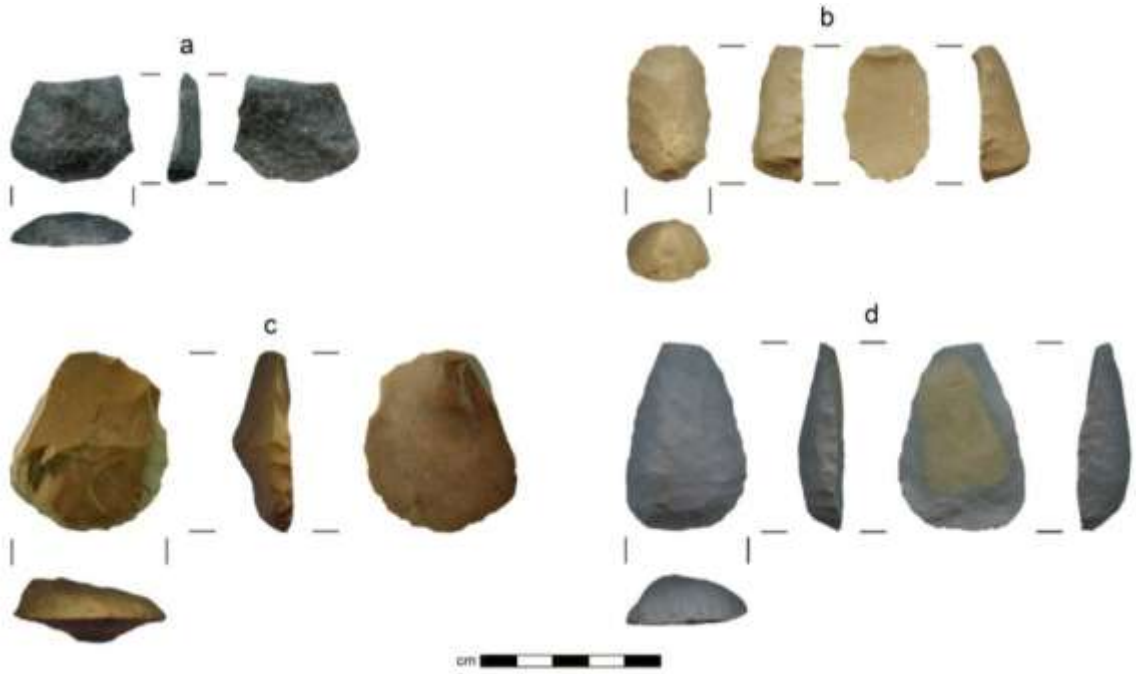

Figure 151. FAI-00335 submerged scrapers

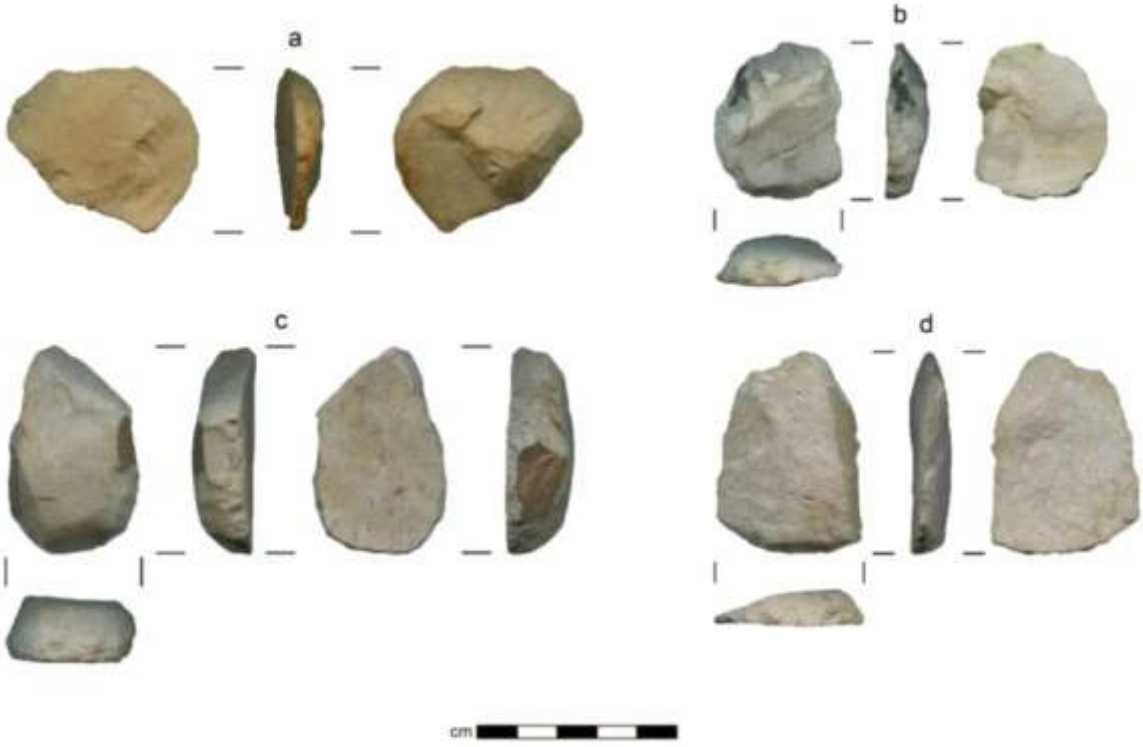

Figure 152. FAI-00335 submerged and heavily weathered scrapers

Table 11. FAI-00335 lithic debitage

Debitage Type	Size Class	Material Type	Color	Munsell Code
flake fragment	> 40 mm	rhyolite	light gray	5Y 7/1
flake fragment	20-30 mm	rhyolite	light gray	2.5Y 7/1
flake fragment	30-40 mm	rhyolite	light gray	2.5Y 7/2
flake fragment	30-40 mm	chert	gray	2.5Y 5/1
complete flake	> 40 mm	rhyolite	gray	2.5Y 5/1
broken flake	20-30 mm	rhyolite	light gray	5Y 7/1
broken flake	20-30 mm	chert	light gray	2.5Y 7/1
broken flake	20-30 mm	rhyolite	light gray	10YR 7/1
broken flake	30-40 mm	chert	dark reddish gray	2.5YR 3/1
flake fragment	10-20 mm	rhyolite	gray	2.5Y 6/1
broken flake	30-40 mm	basalt	black	5Y 2.5/1
flake fragment	20-30 mm	basalt	black	5Y 2.5/1
broken flake	20-30 mm	rhyolite	light gray	2.5Y 7/2
broken flake	> 40 mm	basalt	dark gray and light gray	2.5Y 4/1 and 5Y 7/1
complete flake	20-30 mm	chert	dark gray	2.5Y 4/1
flake fragment	20-30 mm	rhyolite	light gray	2.5Y 7/1
flake fragment	20-30 mm	chert	very dark gray	5Y 3/1
broken flake	30-40 mm	basalt	dark gray	5Y 4/1
debris	20-30 mm	chert	black	5Y 2.5/1
flake fragment	10-20 mm	chert	black	5Y 2.5/1
flake fragment	10-20 mm	chert	very dark gray	2.5Y 3/1
broken flake	30-40 mm	chert	gray	5Y 5/1
broken flake	10-20 mm	chert	black	5Y 2.5/1
flake fragment	30-40 mm	rhyolite	light brownish gray	10YR 6/2
broken flake	> 40 mm	chert	black	5Y 2.5/1
debris	> 40 mm	basalt	very dark gray	5Y 3/1
debris	> 40 mm	basalt	dark gray	5Y 4/1
complete flake	20-30 mm	chert	gray	2.5Y 5/1
broken flake	> 40 mm	rhyolite	very pale brown	10YR 7/3
flake fragment	20-30 mm	rhyolite	gray	10YR 6/1
flake fragment	> 40 mm	chert	black	2.5Y 2.5/1
flake fragment	> 40 mm	rhyolite	light gray	2.5Y 7/2
flake fragment	20-30 mm	rhyolite	light gray	5Y 7/1
broken flake	> 40 mm	basalt	gray	5Y 5/1
flake fragment	30-40 mm	chert	dark gray	2.5Y 4/1
debris	> 40 mm	chert	black	10YR 2/1
complete flake	7.5-10 mm	chert	light gray	5Y 7/1
debris	20-30 mm	chert	dark gray	5Y 4/1
debris	10-20 mm	chert	pale olive	5Y 6/3
flake fragment	30-40 mm	basalt	very dark gray	10YR 3/1
complete flake	30-40 mm	milky quartz	white	5Y 8/1
debris	30-40 mm	chert	black	5Y 2.5/1
complete flake	> 40 mm	chert	very dark gray	5Y 3/1
flake fragment	20-30 mm	chert	gray	7.5YR 6/1
broken flake	20-30 mm	chert	black	2.5Y 2.5/1
flake fragment	> 40 mm	rhyolite	light gray	2.5Y 7/1
flake fragment	30-40 mm	basalt	black	2.5Y 2.5/1
broken flake	10-20 mm	rhyolite	light gray	7.5R 7/1
debris	20-30 mm	chert	black	2.5Y 2.5/1
broken flake	> 40 mm	rhyolite	gray	2.5Y 6/1
broken flake	30-40 mm	rhyolite	reddish gray	10R 6/1
debris	10-20 mm	rhyolite	light gray	2.5Y 7/1
flake fragment	10-20 mm	chert	reddish gray	2.5YR 6/1
broken flake	20-30 mm	chert	light gray	10YR 7/1
flake fragment	10-20 mm	chert	reddish gray	10R 5/1
flake fragment	10-20 mm	chert	gray	7.5YR 6/1
debris	30-40 mm	chert	black	10YR 2/1
flake fragment	20-30 mm	rhyolite	light gray	10YR 7/1
debris	> 40 mm	chert	brown	7.5YR 4/4
broken flake	20-30 mm	rhyolite	light gray	5Y 7/1
flake fragment	20-30 mm	rhyolite	reddish gray	2.5YR 5/1
flake fragment	10-20 mm	rhyolite	light gray	2.5Y 7/1

Table 12. FAI-00335 scraper attributes

							Retouch Length (mm)			
Figure	L (mm)	W (mm)	T (mm)	Material Type	Color	Munsell Code	A (left lat.)	B (dist.)	C (right lat.)	D (prox.)
193 a	28.8	35.2	8.7	chert	dark gray	2.5Y 4/1	22	42	22	0
193 b	36.3	23.5	13.5	chert	gray	2.5Y 5/1	36	26	32	18
193 c	49.2	42.9	13.3	chert	olive brown	2.5Y 4/3	0	42	46	0
193 d	52.3	35.4	14.1	chert	gray and light yellowish brown	2.5Y 5/1 and 2.5Y 6/3	48	38	49	12
194 a	49.2	38.2	13.0	rhyolite	pale yellow	2.5Y 7/4	46	33	UID*	0
194 b	51.1	42.4	11.7	chert	gray	5Y 5/1	39	26	40	45
194 c	51.3	34.5	16.1	rhyolite	gray	2.5Y 6/1	UID*	36	UID*	0
2d	51.5	38.5	11.3	rhyolite	light gray	2.5Y 7/1	0	41	0	0
not shown	98.2	69.4	15.6	chert	olive gray	5Y 5/2	0	0	106	0
not shown	29.5	26.3	7.7	rhyolite	light gray	2.5Y 7/1	26	29	0	24
not shown	27.3	19.5	7.7	chert	dark reddish gray	5YR 4/2	21	28	0	0

*flake scars too heavily weathered

Table 13. FAI-00335 retouched flake attributes

Figure	L (mm)	W (mm)	T (mm)	Material Type	Color	Munsell Code	A (left lat.)	B (dist.)	C (right lat.)	D (prox.)
not shown	55.7	31.1	10.0	chert	very dark gray	10YR 3/1	54	0	67	0
not shown	35.1	49.5	13.6	chert	dark gray	5Y 4/1	0	55	0	0
not shown	51.6	34.5	11.6	chert	olive gray	5Y 5/2	51	0	0	0
not shown	39.3	33.2	11.5	rhyolite	light gray	5Y 7/1	0	UID	0	0
not shown	47.0	43.4	10.0	rhyolite	light gray	7.5R 7/1	33	0	0	0
not shown	38.4	20.3	13.2	rhyolite	light gray	5Y 7/1	52	0	28	0
not shown	44.5	40.9	7.0	rhyolite	light gray	2.5Y 7/1	32	41	38	17
not shown	65.2	57.8	16.2	chert	very dark gray	5Y 3/1	34	0	0	0
not shown	29.7	30.8	6.1	rhyolite	light gray	5Y 7/2	0	0	30	0
not shown	24.2	24.5	5.8	rhyolite	light gray	5Y 7/1	0	26	0	0
not shown	64.8	44.8	21.8	chert	very dark gray	5Y 3/1	0	52	54	0

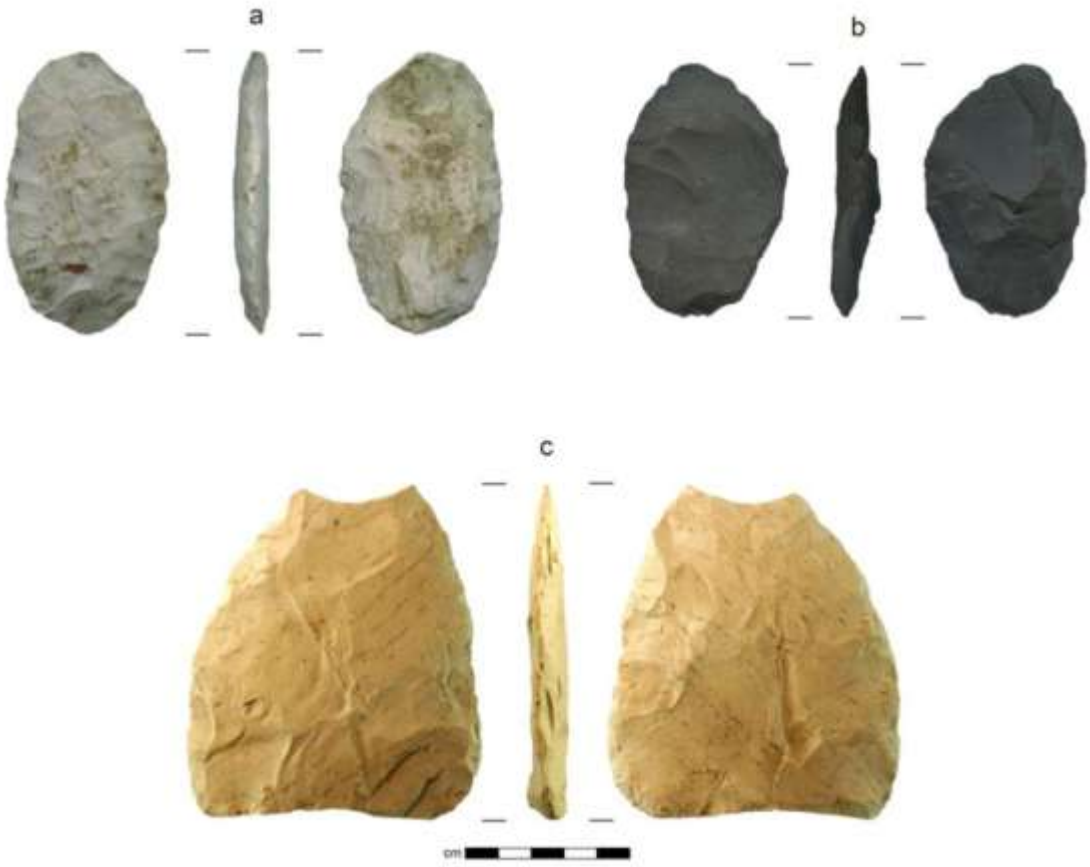

Figure 153. FAI-00335 submerged bifaces

Table 14. FAI-00335 biface attributes

Figure	L (mm)	W (mm)	T (mm)	Material Type	Color	Munsell Code
195 a	85.0	50.5	12.0	rhyolite	gray	5Y 6/1
not shown	na*	27.1	9.4	chert	very dark gray	5Y 3/1
195b	77.1	51.2	15.7	basalt	very dark gray	5Y 3/1
not shown	na**	na**	11.9	chert	dark gray	2.5Y 4/1
not shown	na**	na**	9.7	rhyolite	light gray	5Y 7/1
not shown	na***	35.2	15.2	chert	dark gray	2.5Y 4/1
195c	98.7	87.4	12.2	rhyolite	light gray	2.5Y 7/2

*medial fragment;**margin fragment; ***basal fragment

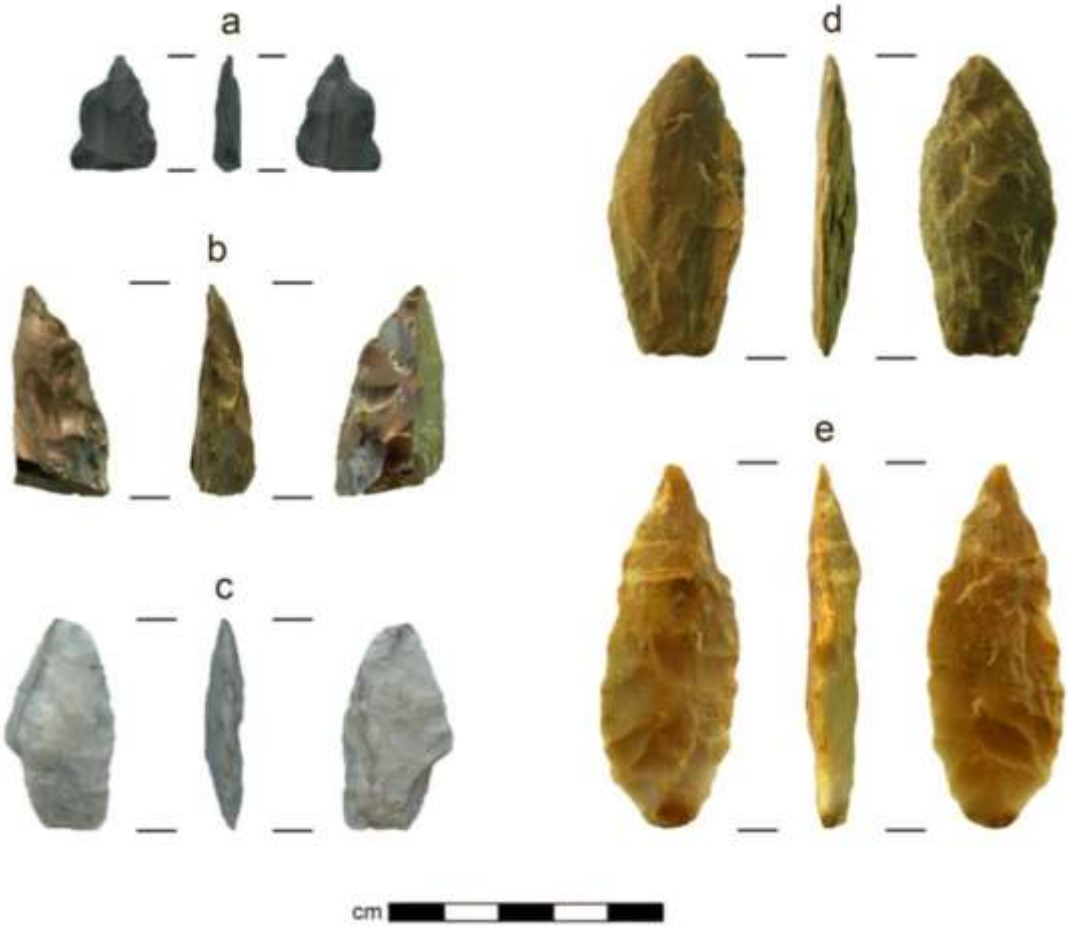

Figure 154. FAI-00335 submerged projectile points

Table 15. FAI-00335 projectile point attributes

Figure	L (mm)	W (mm)	T (mm)	Material Type	Color	Munsell Code
196 a	na*	16.5	5.8	chert	black	2.5Y 2.5/1
196 b	na*	na*	11.5	chert	black	10YR 2/1
196 c	38.2	20.7	7.4	chert	light gray	2.5Y 7/1
196 d	53.5	24.8	7.8	chert	dark greenish gray	10GY 4/1
196 e	65.1	24.5	9.2	chert	olive brown	2.5Y 4/3

*margin fragment

Figure 155. FAI-00335 submerged burin

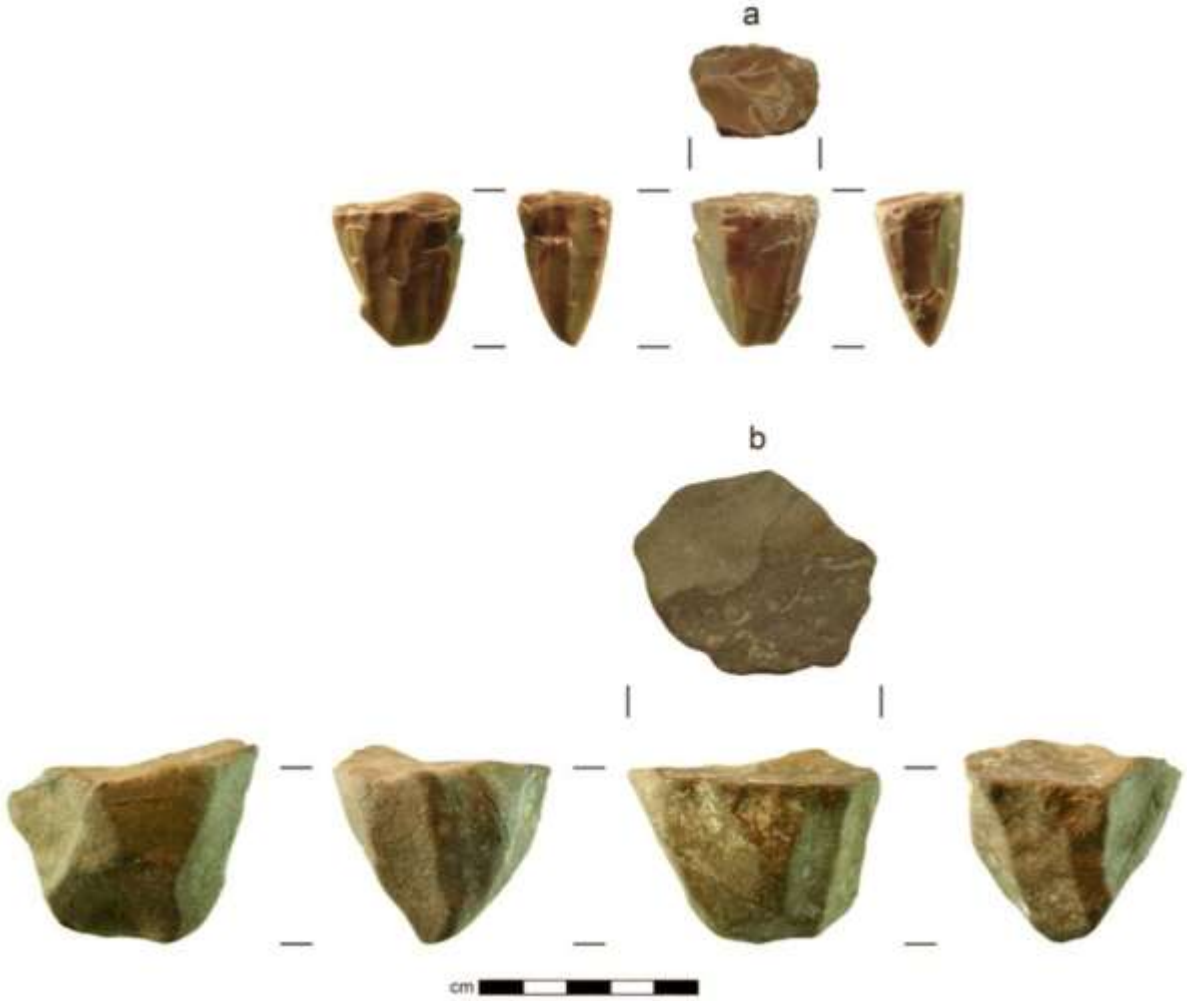

Figure 156. FAI-00335 submerged microblade cores

Table 16. FAI-00335 microblade core attributes

core form	core length	core height	core T	# of flutes	Avg. flute W	# of flute hinges	platform L	platform W	platform # of flake scars	keel shape	keel damage	Material Type	Color	Munsell Code
conical	27.6	33.5	20.5	16	4.4	5	27.1	20.2	7	point	n	chert	light olive brown	2.5Y 5/4

*metric attributes were only recorded for Figure 197 specimen a; the flake scars on specimen b were too heavily weathered to obtain precise measurements

FAI-000335 Archaeological District Boundaries

Shoreline artifact distribution documented during 2008 and 2009 obliges an update of the Blair Lakes Archaeological District boundaries. The artifacts were found in a more or less continuous distribution in the shallows along 820 m of shoreline. Given this continuous distribution, assigning recovered artifacts to specific sites within the district is problematic. The spatial distribution and density of artifacts supports the notion that the individual prehistoric sites defined within the district, in fact represent one extensive site with multiple components and activity areas.

Dixon et al. (1980) were clear that they had not clearly established the boundaries for any of the prehistoric sites within the district. Phase II evaluations of FAI-00044 and FAI-00045 were deemed insufficient to determine site boundaries. Neither of the other two prehistoric sites within the district was subjected to evaluation phase investigations that would delineate their boundaries.

Dixon et al. (1980) report that the Blair Lakes sites occupy a 600 m stretch of shoreline. Given that the recent investigation documented artifacts along a continuous 820 m of shoreline, the Blair Lakes Archaeological District boundaries should be expanded by roughly 220 m in an east-west direction.

The Blair Lakes Archaeological District nomination form was prepared by the Alaska Heritage Research Group in 1985.

With the proposed expansion of the Blair Lakes Archaeological District boundaries and advances in GPS technology in the past 25 years, the boundary coordinates of the district should be updated.

4.4 TFTA Sand Dunes

The northwestern portion of the TFTA contains a 45 km²/19,255 acre discontinuous vegetated sand dune field that occupies a triangular area east of the lower Wood River, south of the Tanana River and north of the Wood River Buttes (Figure 157). Topographically, the dune field is dominated by a northeast-southwest trending linear dune complex that extends roughly 5 km, is 200-800 m in width, and rises as high as 45 m above the surrounding flats. This represents the most obvious feature in the dune complex, and has received the most attention from the limited research in the area (e.g. Dixon et al. 1980: 215). This feature and a few of the larger dunes to the south and west appear on USGS geologic (Péwé et al. 1966) and topographic maps of the area. Low-speed, low-elevation overflights of the area conducted by CSU CEMML during 2009 revealed the presence of several dozen additional linear, parabolic, and ovate sand dunes diffusely spread over a 40 km2/16,900 acre area to the south and west of the linear dune complex. In many places the dunes surround undrained depressions, old ponds and relict stream channels.

Geologically, the dune field remains relatively unstudied, and there is much to learn in terms of dune morphology, timing of and paleoenvironmental factors influencing dune formation and stabilization. The existing literature (e.g. Péwé 1975; Péwé et al. 1966; Hopkins 1982; Lea and Waythomas 1990) tends to associate this dune field with the extensive Nenana Dune field located more than 35 km to the west (Collins 1985). The dunes were probably formed from sands derived from the Tanana River during full to late glacial times. Some researchers (e.g. Lea and Waythomas 1990) hypothesize late glacial to early Holocene dune formation from existing full-glacial sand sheets throughout much of central Alaska. Given large areas of reworked sand deposits on the margins of the dunes in Tanana Flats, such a scenario might account for dune formation here. Final dune formation likely occurred during the latest Pleistocene, with subsequent early Holocene dune stabilization and vegetation. This notion is supported by an inferred terminal Pleistocene increase in wind intensity in central Alaska during the Younger Dryas (Bigelow et al. 1990).

Lithologically the dunes consist of very fine to medium aeolian sand, and reworked organic silty sand. Both deposits are capped by aeolian silt from 1 to 3.5 m thick. Vegetation in the dunes is dominated by broadleaf, and mixed broadleaf-needleleaf forests associated with better drained soils. The dunes are surrounded by abandoned flood plain alluvium on the north and west, swamp deposits on the east and Healy-aged outwash in the south and central portions.

The dunes were subject to archaeological survey during 1979 (Dixon et al. 1980: 33, 48, 217-218). No sites were identified at the time, despite the fact that over 495 shovel test pits were excavated.

2009 Field Survey

The dune field was targeted for archaeological survey during 2009 as part of a long range planning and feasibility assessment related to potential range development at the TFTA. Fieldwork was conducted by a team of five CSU CEMML archaeologists under the direct supervision of Edmund Gaines, M.A., R.P.A., during August 15 to 19, and October 5 to 9, 2009.

Field methods consisted of rotary-wing aerial reconnaissance to select high-probability locations for ground survey. Twenty-nine testing locations were selected. Ground survey consisted of visual inspection of the dune surfaces, and subsurface testing. In total, 155 shovel test pits were excavated. Shovel test pits were 50 x 50 cm and screened through ¼" mesh. In order to ensure comprehensive site identification efforts, and to adequately sample for deeply buried cultural remains, nearly all of the test pits were excavated to a depth of 140 cm BS—the maximum excavation depth possible with a standard shovel.

Results

Twenty-five of the 29 testing locations (86%) were positive for cultural remains resulting in the identification of 25 prehistoric archaeological sites. All of these contain buried remains and were discovered through subsurface testing. Of the 155 total test pits excavated in the dune field, 55 (35%) yielded archaeological remains. The following is a description of the sites:

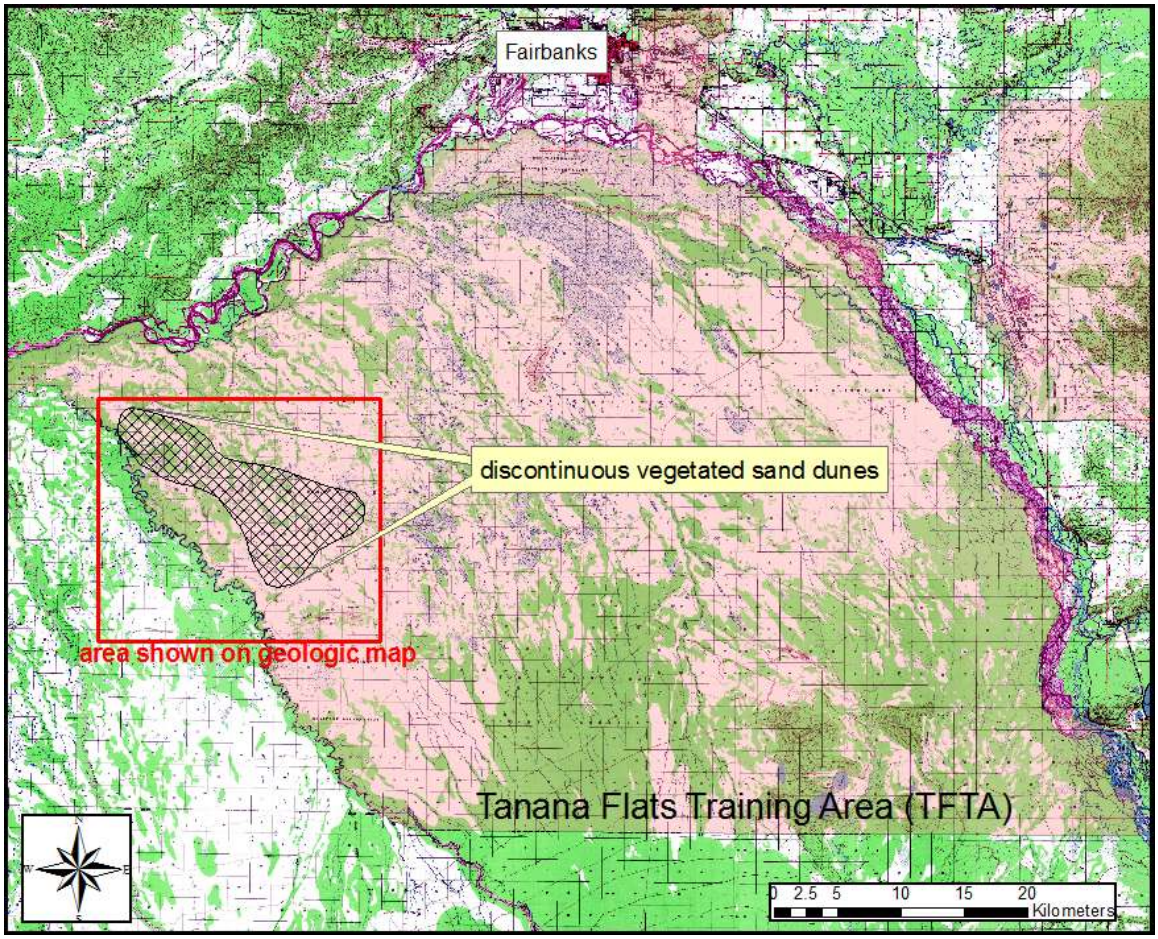

Figure 157. Location of stabilized dune field in TFTA

FAI-02004
Determination of Eligibility: Not evaluated

Site FAI-02004 is located on the crest of a large, northwest-southeast (120°) trending, vegetated sand dune (Figure 158). Site elevation is 172 masl. The crest of the dune is roughly 70-90 m wide, with a slope of 0-3°. The southwest and northeast sides of the dune slope at 40-60° dropping 20-30 m to the valley floor below. The location provides a commanding view of the Tanana flats to the east, while the view to the north, south, and west is obscured by thick vegetation. The ecosystem is characterized as an open upland dry broadleaf forest. The site area is dominated by burnt aspen and spruce trunks and deadfall, with some standing live aspen, and isolated white spruce (Figure 159). The understory consists of alders, fireweed, rose hips and high-bush cranberries.

Site FAI-02004 was found through subsurface testing. Cultural material was recovered from two of five test pits excavated. Two flakes were recovered from depths of 5-13 cm BS. The first of these is a flake fragment between 10-20 mm, made of light yellowish brown (10 YR6/4) rhyolite.

The second is a broken flake 10-20 mm in diameter, made of brown (10 YR5/3) rhyolite.
Site stratigraphy consists of aeolian silts more than 350 cm thick overlying aeolian dune sands (Figure 160). Soil development consists of dark brown, charcoal-rich organic mat at 0-4 cm BS, with an underlying brown silt AB horizon 4-14 cm BS, and a reddish brown silt Bw horizon at 14-33 cm BS. Yellow silt extends from 33-50 cm BS, which is, in turn, underlain by unaltered gray silt (C horizon) to depths of more than 350 cm BS.

Figure 158. FAI-02004 aerial overview (view to northeast)

Figure 159. FAI-02004 overview (view to east)

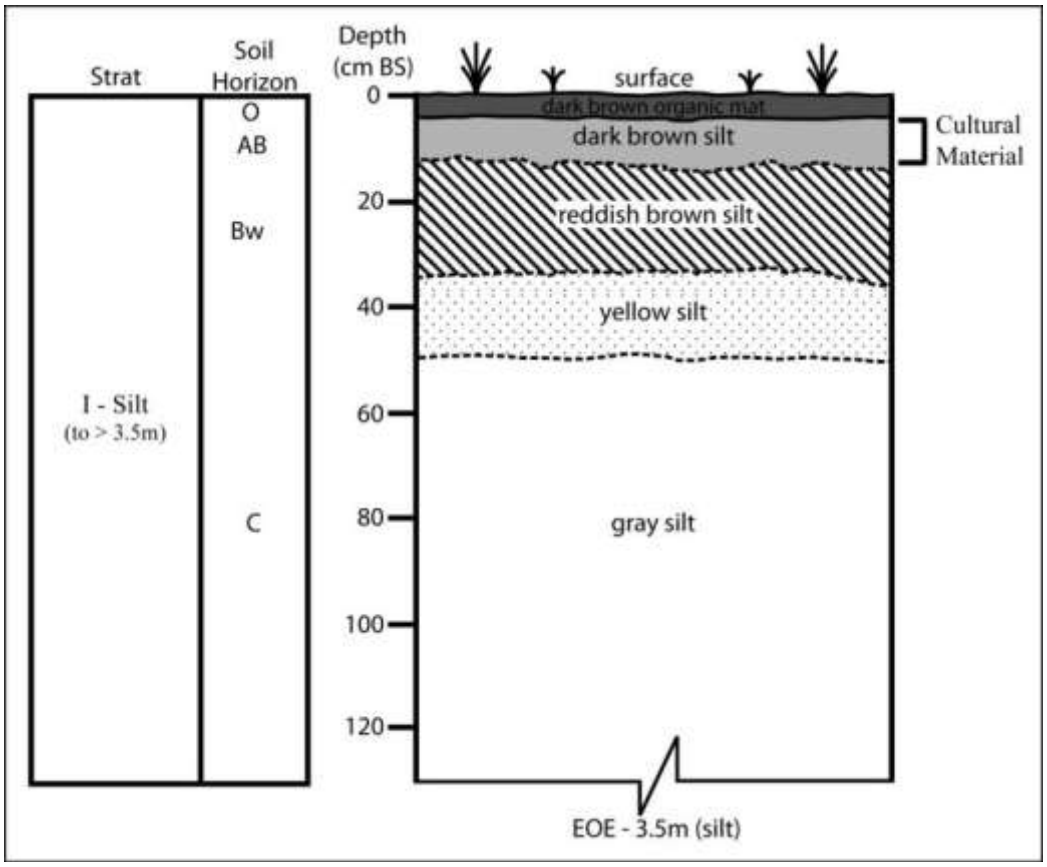

Figure 160. FAI-02004 stratigraphy

FAI-02005
Determination of Eligibility: Not evaluated

Site FAI-02005 is located on a high flat spot on the southern lobe of a large dune (Figure 161). The location is at the southern end of an extensive northwest-southeast trending (120°) vegetated dune complex. Site elevation is 157 masl. The flat area on the crest of the dune is roughly 175 m long north-south, and 100 m east-west with a slope of 0-3°. The south, east, and west sides of the dune slope at 20-60° dropping 15-20 m to the valley floor below. The location provides a 270° view shed, with open view to the south, east and west. The ecosystem is characterized as an open upland dry broadleaf forest. The site area is dominated by burnt aspen and deadfall, with some standing live aspen, and an understory consisting primarily of fireweed (Figure 162).

Site FAI-02005 was found through subsurface testing. Cultural material was recovered from one of six test pits excavated. Two flakes were recovered from depths of 20-30 cm BS. Both of these are between 10-20 mm and made of dark gray (10 YR 4/1-2) rhyolite. One is a complete tertiary flake; the other is a broken flake.

Site stratigraphy consists of aeolian silts 45-50 cm thick overlying aeolian dune sands (Figure 163). Soil development consists of dark brown, charcoal-rich organic mat at 0-4 cm BS, with an underlying brown silt AB horizon 4-15 cm BS. Unaltered yellow silt (1C horizon) extends from

15-28 cm BS. A brown silt Ab horizon occurs at 28-30 cm BS, with an underlying reddish silt Bwb1 horizon at 30-48 cm BS. Very well sorted, very fine sands extend from 48 cm BS to where test pit excavation was terminated at 140 cm BS. The upper 10 cm of the sands exhibit reddish staining due to soil development from the Bwb1 horizon, while the lower portions are an unaltered light gray 2C horizon.

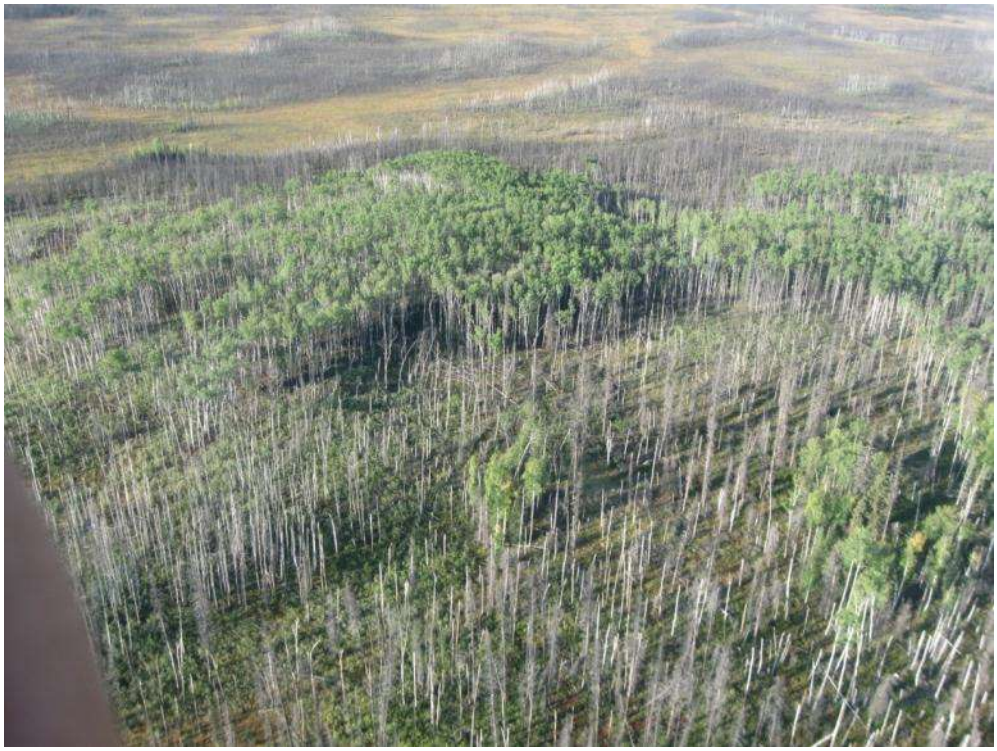

Figure 161. FAI-02005 aerial overview (view to west)

Figure 162. FAI-02005 overview (view to east)

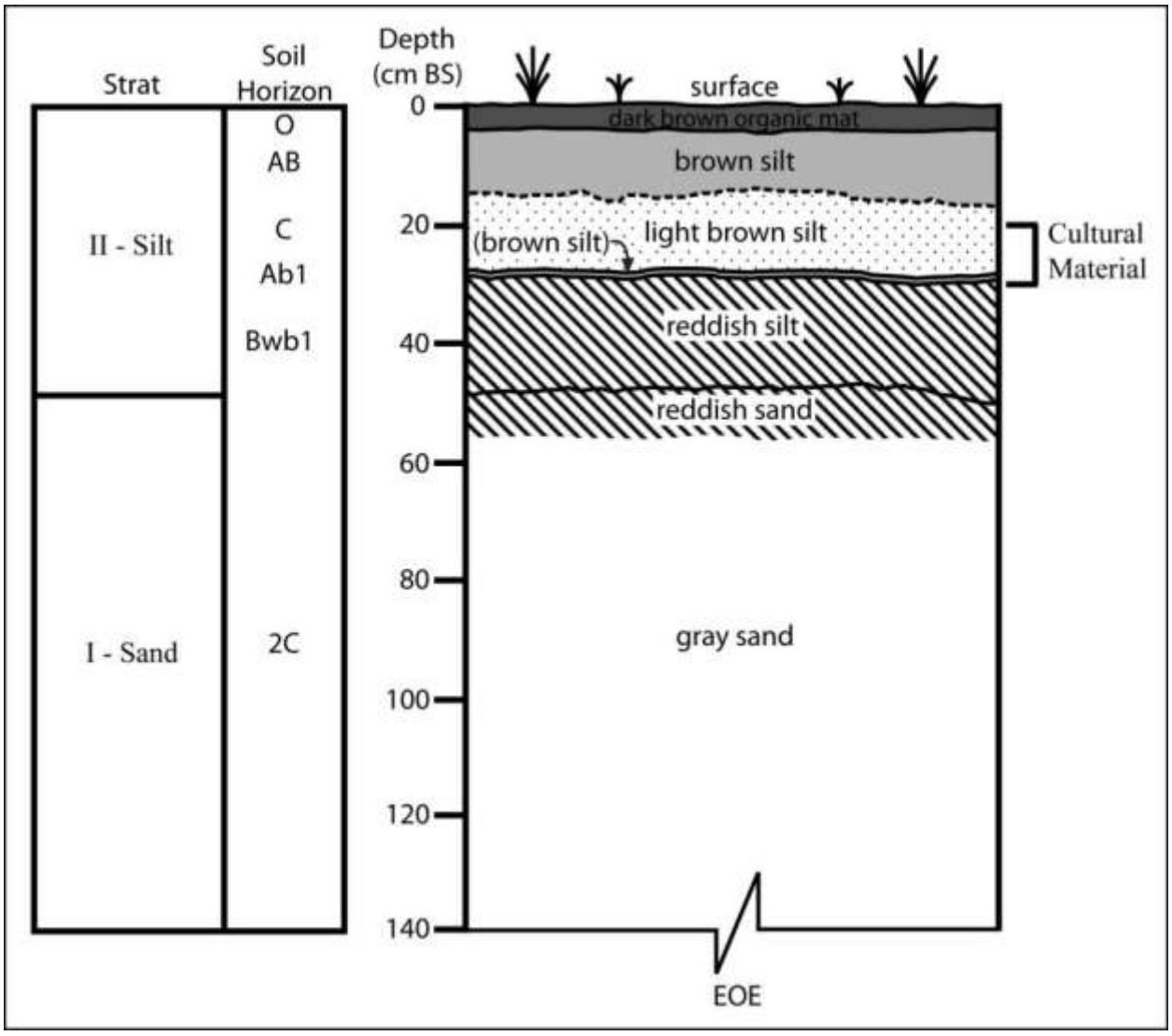

Figure 163. FAI-02005 stratigraphy

FAI-02006
Determination of Eligibility: Not evaluated

Site FAI-02006 is located on the crest of a large dune (Figure 164) within a northwest-southeast trending dune complex. Site elevation is 155 masl. The flat area on the crest of the dune is roughly 100 m x 75 m with a slope of 0-3°. The dune slopes at a 30-40° grade on all sides, dropping 15-20 m to the valley floor below. The location provides a commanding 360° view of the surrounding Tanana Flats. The ecosystem is characterized as an open upland dry broadleaf forest. Vegetation consists of burnt aspen and deadfall, with some standing live aspen, and a thick understory consisting of young aspen, small white spruce, and fireweed (Figure 165).

Site FAI-02006 was found through subsurface testing. Cultural material was recovered from one of six test pits excavated. One complete flake, measuring between 5-7.5 mm in diameter and made of light yellowish brown rhyolite (10 YR 6/4) was recovered from depths of 15-25 cm BS.

Site stratigraphy consists of aeolian silts more than 140 cm thick overlying aeolian dune sands (Figure 166). Soil development consists of dark brown, charcoal-rich organic mat at 0-4 cm BS, with an underlying brown silt AB horizon 4-16 cm BS. Unaltered tan silt (C1 horizon) extends from 16-24 cm BS. A brown silt Ab1 horizon occurs at 24-26 cm BS, with an underlying reddish silt Bwb1 horizon at 26-50 cm BS. Light gray silt (C2 horizon) extends to at least 140 cm BS—the depth that test pit excavations were terminated.

Figure 164. FAI-02006 aerial overview (view to north)

Figure 165. FAI-02006 overview (view to north)

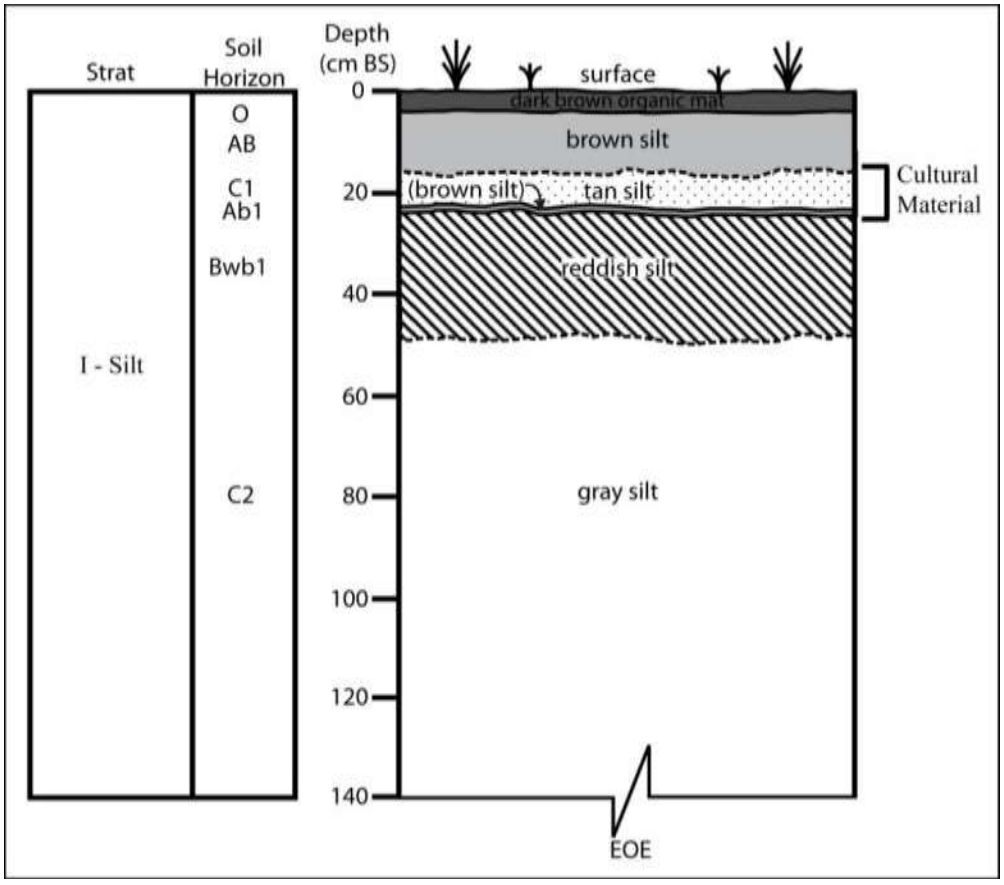

Figure 166. FAI-02006 stratigraphy

FAI-02007
Determination of Eligibility: Not evaluated

Site FAI-02007 is located on a high, flat spot of a large dune (Figure 167) within northwest-southeast trending dune complex. Site elevation is 155 masl. The flat area on the crest of the dune is roughly 250 m x 125 m with a slope of 0-3°. The dune slopes at a 30-40° grade on all sides, dropping 20-25 m to the valley floor below. The location provides a commanding 360° view of the surrounding Tanana Flats. The ecosystem is characterized as an open upland dry broadleaf forest. Vegetation consists of burnt aspen and deadfall, with thick stands of young aspen, grasses and fireweed (Figure 168).

Site FAI-02007 was found through subsurface testing. Cultural material was recovered from two of five test pits excavated. One speckled gray (2.5 Y 4/1) chert microblade medial fragment (Figure 169) was found in one test pit at a depth of 20-35 cm BS. The microblade fragment is 13.3 mm long, with a maximum width of 5.9 mm, and thickness of 2.3 mm. The other positive test pit yielded two flakes from a depth range of 15-40 cm BS. Both of these are broken tertiary flakes, size class 5-7.5 mm. One is made of brown (7.5YR 5/2) rhyolite, while the other is made of light gray (2.5 Y 7/2) chert, that exhibits some reddish brown (2.5 YR 4/4) oxidation indicative of burning.

Site stratigraphy consists of aeolian silts 70 cm thick overlying aeolian dune sands (Figure 170). Soil development consists of dark brown, charcoal-rich organic mat at 0-4 cm BS, with an underlying brown silt AB horizon at 4-14 cm BS. A reddish silt Bw horizon extends from 14-46 cm BS. A thin, dark brown, clay and iron-rich lamella extends through the Bw horizon from depths of 16-22 cm BS, while a buried dark brown silt Ab horizon is evident at 36-38 cm BS. Unaltered gray silt (1C horizon) extends from 48-100 cm BS, and the lower portions (70-100 cm BS) contain discontinuous very fine sand lenses. Very fine, well-sorted dune sands (2C horizon) begin at 100 cm BS and extend to at least 140 cm BS—the depth at which test pit excavations were terminated.

Figure 167. FAI-02007 aerial overview (view to north)

Figure 168. FAI-02007 overview (view to north)

Figure 169. FAI-02007 microblade fragment

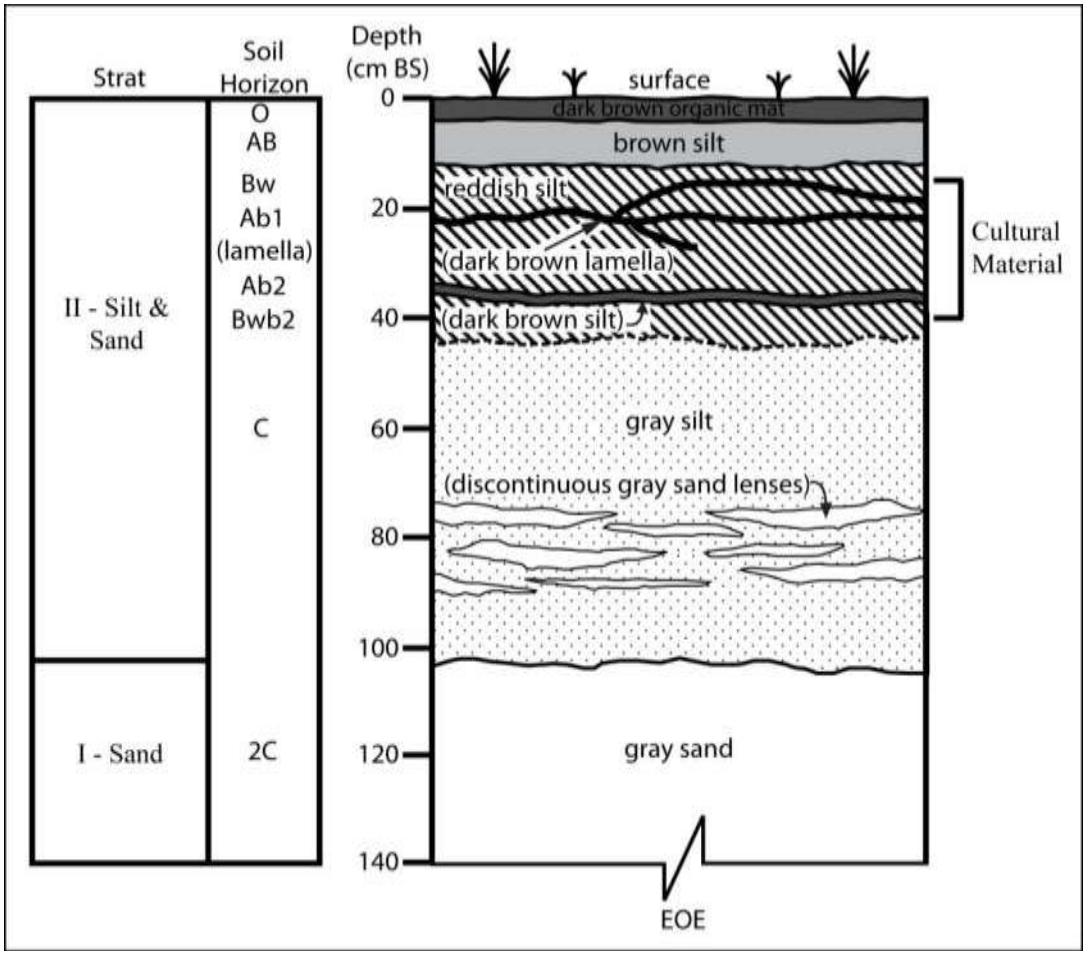

Figure 170. FAI-02007 stratigraphy

FAI-02008
Determination of Eligibility: Not evaluated

Site FAI-02008 is located on the ovate crest of a low dune (Figure 171) on the northwestern end of a northwest-southeast trending dune complex. Site elevation is 145 masl. The flat area on the crest of the dune is roughly 100 m x 90 m with a slope of 0-5°. The dune slopes at a 25-30° grade on all sides, dropping 20-25 m to the valley floor below. The location provides a commanding 360° view shed of the surrounding Tanana Flats. The ecosystem is characterized as an open upland dry broadleaf forest (Figure 172). Vegetation consists of burnt aspen and deadfall, with thick stands of young aspen, grasses and fireweed.

Site FAI-02008 was found through subsurface testing. Cultural material was recovered from five of five test pits excavated. Fifty-six lithic artifacts, all of which are characterized as lithic debitage (

Table 17), were recovered from depths of 5-45 cm BS. In situ flakes were found at depths of 30, 33, 36 and 41 cm BS within and directly beneath the Ab1 horizon described below.

Site stratigraphy consists of aeolian silts more than 140 cm thick overlying aeolian dune sands (Figure 173). Soil development consists of dark brown, charcoal-rich organic mat at 0-4 cm BS, with an underlying brown silt AB horizon 4-30 cm BS. A reddish silt Bw horizon extends from 30-42 cm BS. A dark brown silt Ab1 horizon is evident at 30-32 cm BS. Unaltered gray silt (C1 horizon) begins at 42 cm BS extends to at least 140 cm BS—the depth at which test pit excavations were terminated.

Figure 171. FAI-02008 aerial overview (view to northwest)

Figure 172. FAI-02008 overview (view to northeast)

Table 17. FAI-02008 lithic debitage

Test Pit	Depth (cm BS)	Debitage Type	Size Class	Material Type	Color	Munsell Code
23	0-15	debris	10-20 mm	rhyolite	pale brown	10YR 6/3
23	15-25	flake fragment	20-30 mm	basalt	dark brown	7.5YR 3/2
23	15-25	flake fragment	5-7.5 mm	basalt	very dark gray	5Y 3/1
23	15-25	broken flake	7.5-10 mm	chert	yellowish brown	10YR 5/4
23	15-25	broken flake	10-20 mm	rhyolite	light yellowish brown	10YR 6/4
23	15-25	flake fragment	7.5-10 mm	rhyolite	light yellowish brown	10YR 6/4
23	15-25	broken flake	7.5-10 mm	chert	reddish brown	5YR 4/3
23	15-25	flake fragment	5-7.5 mm	chert	very dark gray	10YR 3/1
23	25-35	broken flake	10-20 mm	basalt	very dark gray	5Y 3/1
23	25-35	flake fragment	10-20 mm	chert	very dark gray	5Y 3/1
23	25-35	flake fragment	10-20 mm	basalt	very dark gray	5Y 3/1
23	25-35	flake fragment	10-20 mm	basalt	very dark gray	5Y 3/1
23	25-35	flake fragment	7.5-10 mm	basalt	dark gray	2.5Y 4/1
23	25-35	flake fragment	10-20 mm	basalt	very dark gray	5Y 3/1
23	25-35	flake fragment	7.5-10 mm	basalt	very dark gray	5Y 3/1
23	25-35	flake fragment	7.5-10 mm	basalt	very dark gray	5Y 3/1
23	25-35	flake fragment	7.5-10 mm	basalt	very dark gray	5Y 3/1
23	25-35	flake fragment	7.5-10 mm	basalt	very dark gray	5Y 3/1
23	25-35	flake fragment	5-7.5 mm	rhyolite	gray	10YR 5/1
23	25-35	flake fragment	10-20 mm	chert	black	2.5Y 2.5/1
23	25-35	flake fragment	7.5-10 mm	chert	black	2.5Y 2.5/1
23	25-35	broken flake	10-20 mm	chert	black	2.5Y 2.5/1
23	33	flake fragment	10-20 mm	basalt	dark gray	2.5Y 4/1
23	33	flake fragment	7.5-10 mm	basalt	dark gray	2.5Y 4/1
23	35-45	flake fragment	10-20 mm	basalt	dark gray	2.5Y 4/1
23	35-45	debris	10-20 mm	chert	black	2.5Y 2.5/1
23	35-45	flake fragment	10-20 mm	chert	black	2.5Y 2.5/1
23	35-45	flake fragment	10-20 mm	basalt	very dark gray	5Y 3/1
23	35-45	broken flake	10-20 mm	chert	very dark gray	5Y 3/1
23	35-45	flake fragment	7.5-10 mm	chert	very dark gray	5Y 3/1
23	35-45	flake fragment	7.5-10 mm	rhyolite	gray	10YR 6/1
23	35-45	flake fragment	10-20 mm	rhyolite	gray	2.5Y 6/1
23	35-45	broken flake	10-20 mm	rhyolite	light yellowish brown	10YR 6/4
23	36	flake fragment	20-30 mm	basalt	very dark gray	5Y 3/1
23	41	broken flake	10-20 mm	basalt	very dark gray	5Y 3/1
23	45-55	broken flake	20-30 mm	chert	very dark gray	5Y 3/1
23	45-55	flake fragment	10-20 mm	basalt	dark gray	2.5Y 4/1
23	45-55	flake fragment	10-20 mm	basalt	dark gray	2.5Y 4/1
23	45-55	flake fragment	7.5-10 mm	basalt	very dark gray	5Y 3/1
23	45-55	broken flake	10-20 mm	chert	dark gray	10YR 4/1
23	45-55	broken flake	10-20 mm	chert	very dark gray	5Y 3/1
23	45-55	broken flake	7.5-10 mm	chert	gray	10YR 5/1
23	65-75	broken flake	10-20 mm	chert	dark gray & olive gray	2.5Y 4/1 & 5Y 5/2
24	0-15	broken flake	10-20 mm	chert	very dark gray	5Y 3/1
24	20-30	flake fragment	10-20 mm	chert	dark gray & (transl.) white	5Y 3/1 & 2.5Y 8/1
24	20-30	broken flake	10-20 mm	chert	very dark gray	5Y 3/1
24	0-30	flake fragment	7.5-10 mm	chert	very dark gray	5Y 3/1
24	0-30	broken flake	10-20 mm	chert	(transl.) light gray	5Y 7/1
24	30	debris	5-7.5 mm	quartz	translucent	translucent
24	30	debris	5-7.5 mm	quartz	translucent	translucent
25	16-26	flake fragment	7.5-10 mm	rhyolite	strong brown	7.5YR 5/6
26	10-20	broken flake	20-30 mm	rhyolite	light yellowish brown	10YR 6/4
26	30-40	flake fragment	10-20 mm	rhyolite	light yellowish brown	2.5Y 6/4
26	30-40	flake fragment	30-40 mm	basalt	very dark gray	5Y 3/1
27	10-20	flake fragment	10-20 mm	chert	dark gray	2.5Y 4/1
27	30-40	flake fragment	7.5-10 mm	chert	dark gray	2.5Y 4/1

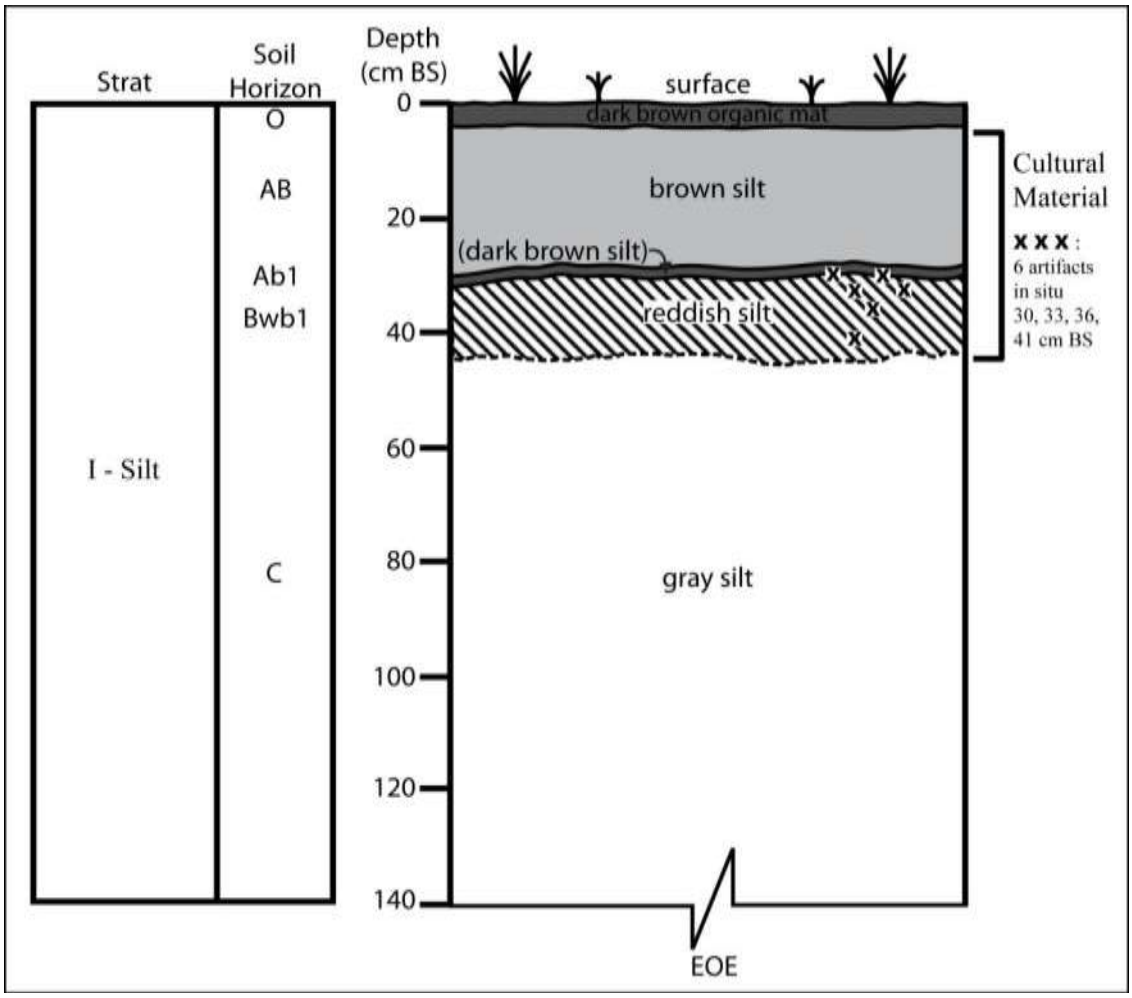

Figure 173. FAI-02008 stratigraphy

FAI-02009
Determination of Eligibility: Not evaluated

Site FAI-02009 is located on the crest of a high dune (Figure 174) on the southeastern end of a northwest-southeast trending dune complex. Site elevation is 163 masl. The flat area on the crest of the dune is roughly 120 m x 60 m with a slope of 2-10°. The dune slopes at a 30-40° grade on all sides, dropping 25-30 m to the valley floor below. The location provides a commanding 360° view shed of the surrounding Tanana Flats. The ecosystem is characterized as an open upland dry broadleaf/needleleaf forest. The site area is dominated by burnt aspen and spruce trunks, and deadfall, with an understory of high-bush cranberries, shrubs, ferns, grasses and moss (Figure 175).

Site FAI-02009 was found through subsurface testing. Cultural material was recovered from five of five test pits excavated. Fifty-four lithic artifacts, all of which are characterized as lithic debitage (Table 18) were recovered from depths of 0-40 cm BS, including four flakes found in situ at 15-17 cm BS. An additional piece of flakestone debitage was found at a depth of 60-70 cm BS.

Site stratigraphy consists of aeolian silts roughly 50 cm thick overlying aeolian dune sands (Figure 176). Soil development consists of dark brown, charcoal-rich organic mat at 0-4 cm BS, with an underlying brown silt AB horizon at 4-18 cm BS. Unaltered, light brown silt (C1 horizon) extends from 18-24 cm BS. Thin, dark brown, clay and iron-rich, braided lamellae extend from depths of 22-26 cm BS, with an underlying reddish brown silt Bwb1 horizon from 24-34 cm BS. Unaltered yellow silt (C2 horizon) extends from 34-50 cm BS. Underlying this are yellow and gray very fine, well-sorted sands which extend to the end of excavation at 140 cm BS.

Figure 174. FAI-02009 aerial overview (view to north)

Figure 175. FAI-02009 overview (view to south)

Table 18. FAI-02009 lithic debitage

Test Pit	Depth	Debitage Type	Size Class	Material Type	Color	Munsell Code
28	0-5	flake fragment	7.5-10 mm	rhyolite	light brown	7.5YR 6/3
28	0-5	flake fragment	10-20 mm	chert	brown	7.5YR 4/2
29	0-5	flake fragment	10-20 mm	chert	dark gray	2.5Y 4/1
29	0-5	broken flake	10-20 mm	chert	very dark gray	7.5YR 3/1
29	5-10	broken flake	7.5-10 mm	chert	very dark gray	5Y 3/1
29	15	flake fragment	10-20 mm	quartz	(translucent) white	5Y 8/1
29	15	flake fragment	20-30 mm	quartz	(translucent) white	5Y 8/1
29	15-20	flake fragment	10-20 mm	rhyolite	light yellowish brown	10YR 6/4
29	60-70	flake fragment	7.5-10 mm	quartz	(translucent) white	5Y 8/1
30	0-10	flake fragment	20-30 mm	rhyolite	brown	7.5YR 5/3
30	10-20	flake fragment	7.5-10 mm	rhyolite	light brown	7.5YR 6/4
30	10-20	flake fragment	7.5-10 mm	rhyolite	brown	7.5YR 5/4
30	10-20	flake fragment	10-20 mm	rhyolite	brown	7.5YR 5/4
30	10-20	flake fragment	10-20 mm	rhyolite	very pale brown	10YR 7/4
30	10-20	broken flake	10-20 mm	rhyolite	light brown	7.5YR 6/4
30	10-20	broken flake	10-20 mm	rhyolite	light yellowish brown	10YR 6/4
30	20-30	flake fragment	10-20 mm	rhyolite	light gray	2.5Y 7/1
30	20-30	flake fragment	10-20 mm	rhyolite	light gray	2.5Y 7/1
30	20-30	flake fragment	10-20 mm	rhyolite	light yellowish brown	10YR 6/4
31	0-10	complete flake	20-30 mm	chert	gray	2.5Y 5/1
31	0-10	flake fragment	20-30 mm	rhyolite	light brown	7.5YR 6/4
32	0-20	flake fragment	10-20 mm	rhyolite	very pale brown	10YR 7/4
32	0-20	flake fragment	10-20 mm	rhyolite	light yellowish brown	10YR 6/4
32	0-20	broken flake	10-20 mm	rhyolite	very pale brown	10YR 7/3
32	0-20	flake fragment	10-20 mm	rhyolite	light gray	10YR 7/2
32	0-20	flake fragment	7.5-10 mm	rhyolite	light gray	10YR 7/2
32	0-20	complete flake	7.5-10 mm	rhyolite	very pale brown	10YR 7/3
32	0-20	broken flake	7.5-10 mm	rhyolite	very pale brown	10YR 7/4
32	0-20	flake fragment	7.5-10 mm	rhyolite	very pale brown	10YR 7/4
32	0-20	flake fragment	7.5-10 mm	rhyolite	light brown	7.5YR 6/4
32	0-20	flake fragment	10-20 mm	rhyolite	light brownish gray	10YR 6/2
32	0-20	broken flake	7.5-10 mm	rhyolite	very pale brown	10YR 7/3
32	0-20	flake fragment	7.5-10 mm	rhyolite	light brownish gray	10YR 6/2
32	0-20	flake fragment	7.5-10 mm	rhyolite	brown	7.5YR 5/3
32	0-20	flake fragment	7.5-10 mm	rhyolite	light brownish gray	10YR 6/2
32	0-20	flake fragment	7.5-10 mm	rhyolite	grayish brown	10YR 5/2
32	0-20	flake fragment	10-20 mm	chert	very pale brown	10YR 7/3
32	0-20	broken flake	7.5-10 mm	chert	dark gray	2.5Y 4/1
32	0-20	broken flake	10-20 mm	chert	dark gray	2.5Y 4/1
32	0-20	broken flake	10-20 mm	chert	dark gray	2.5Y 4/1
32	0-20	flake fragment	10-20 mm	basalt	grayish brown	2.5Y 5/2
32	0-20	broken flake	10-20 mm	chert	dusky red	10R 3/2
32	0-20	flake fragment	10-20 mm	chert	dusky red	10R 3/2
32	0-20	flake fragment	10-20 mm	rhyolite	light brownish gray	10YR 6/2
32	16	broken flake	10-20 mm	basalt	dark gray	2.5Y 4/1
32	17	flake fragment	10-20 mm	rhyolite	very pale brown	10YR 7/3
32	20-40	broken flake	20-30 mm	rhyolite	grayish brown	2.5Y 5/2
32	20-40	flake fragment	10-20 mm	rhyolite	light brown	7.5YR 6/4
32	20-40	broken flake	10-20 mm	rhyolite	light brown	7.5YR 6/3
32	20-40	flake fragment	10-20 mm	rhyolite	light brown	7.5YR 6/4
32	20-40	flake fragment	10-20 mm	chert	very dark gray	5Y 3/1
32	20-40	flake fragment	7.5-10 mm	rhyolite	grayish brown	2.5Y 5/1
32	20-40	flake fragment	10-20 mm	chert	black	2.5Y 2.5/1
32	20-40	flake fragment	10-20 mm	chert	dark gray	5Y 4/1

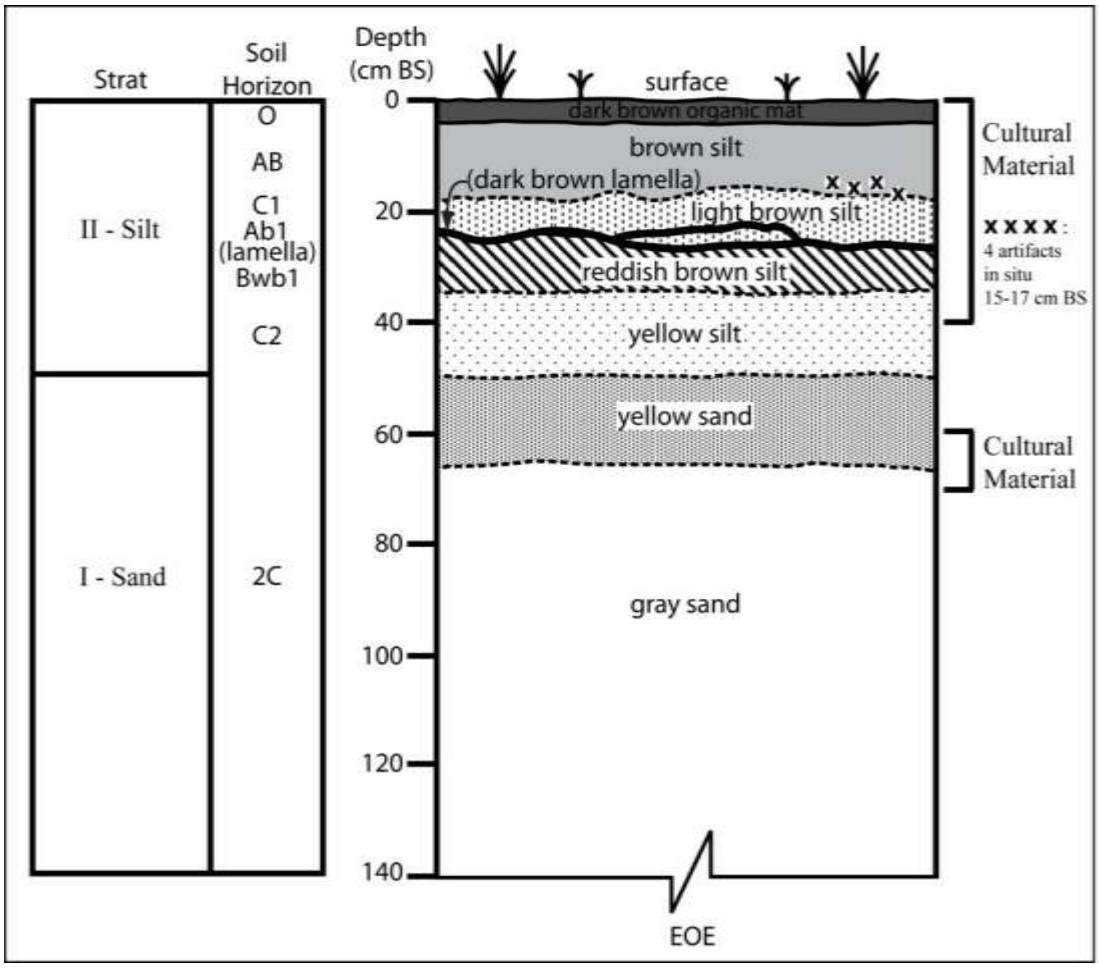

Figure 176. FAI-02009 stratigraphy

FAI-02010
Determination of Eligibility: Not evaluated

Site FAI-02010 is located on the northern lobe of a high dune (Figure 177) in the central portions of a northwest-southeast trending dune complex. Site elevation is 149 masl. The crest of landform is 30 m north-south, and roughly 200 m east-west, with a slope of 3-10°. The sides of the dune slope at a 30-40° grade on all sides, dropping 25-30 m to the valley floor below. The location provides a commanding 360° view shed of the surrounding Tanana Flats. The ecosystem is characterized as an open upland dry broadleaf/needleleaf forest. Vegetation consists of burnt aspen and spruce trunks, and deadfall, with an understory of high-bush cranberries, shrubs, ferns, grasses and moss (Figure 178).

Site FAI-02010 was found through subsurface testing. One test pit, of three excavated, yielded a single piece of flakestone debitage from directly beneath the root mat. The artifact is a flake fragment made of very dark gray (5 Y3/1) basalt between 10-20 mm in diameter.

Site stratigraphy consists of aeolian silts roughly 40 cm thick overlying aeolian dune sands (Figure 179). Soil development consists of dark brown, charcoal-rich organic mat at 0-4 cm BS, with an underlying brown silt AB horizon at 4-14 cm BS. Thin, dark brown, clay and iron-rich, braided lamellae extend from 22-26 cm BS. Yellowish silt (C1 horizon) extends from 22-40 cm BS. Underlying this are yellow very fine, well-sorted sands, which are in turn underlain by gray, very fine, very well-sorted sands (2C horizon) that extend to at least 140 cm BS—the depth that test pits were terminated.

Figure 177. FAI-02010 aerial overview (view to north)

Figure 178. FAI-02010 overview (view to north)

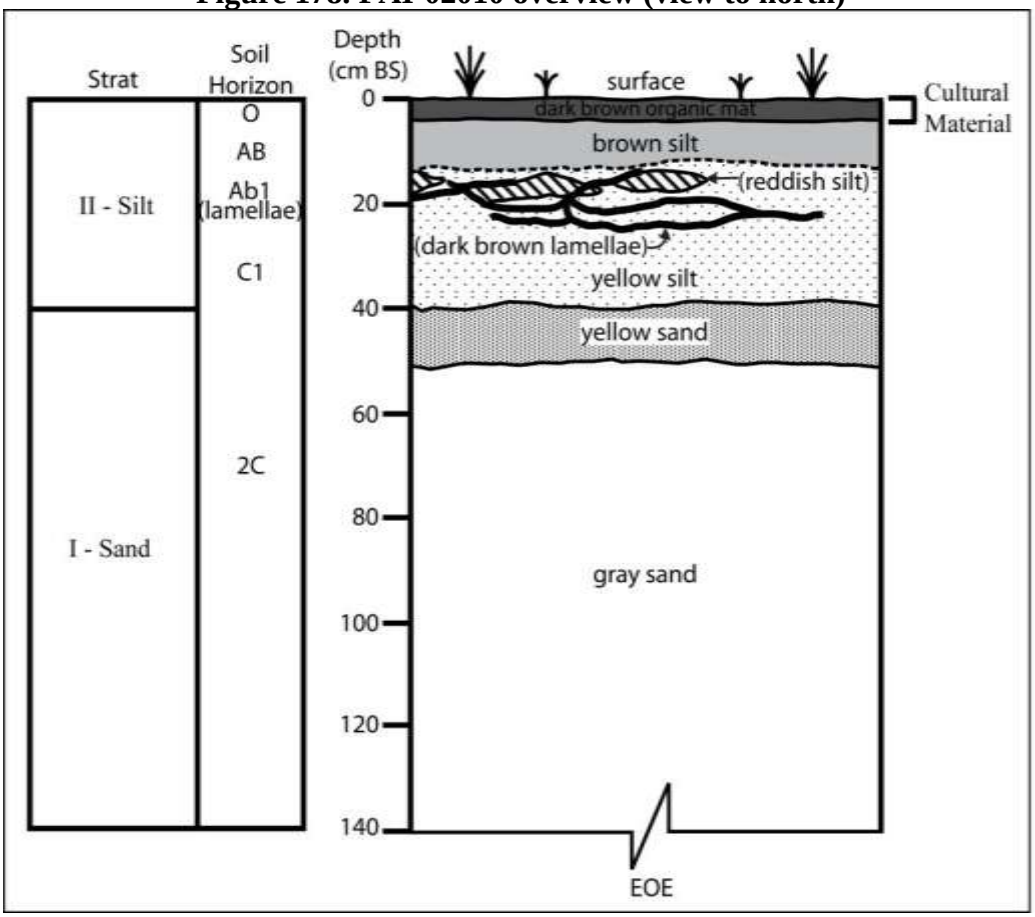

Figure 179. FAI-02010 stratigraphy

FAI-02011
Determination of Eligibility: Not evaluated

Site FAI-02011 is located on the western lobe of a long, linear east-west trending dune (Figure 180) in the central portions of a northwest-southeast trending dune complex. Site elevation is 143 masl. The landform is 30 m north-south, and more than 250 m east-west, with a slope of 3-10° The dune slopes at a 30-40° grade on all sides, dropping 25-30 m to the valley floor below. The location provides an excellent view of the Tanana River and Fairbanks Hills to the north. The ecosystem is characterized as an open upland dry broadleaf/needleleaf forest. Vegetation consists of burnt aspen and spruce trunks, and deadfall, with some live aspen and spruce, and an understory of high-bush cranberries, shrubs, ferns, grasses and moss (Figure 178).

Site FAI-02011 was found through subsurface testing. Cultural material was recovered from one of eight test pits excavated. One burnt, pot lidded, and heat crazed, reddish chert broken flake between 20-30 mm in diameter, was found directly beneath the root mat at a depth of 0-5 cm BS.

Site stratigraphy consists of aeolian silts at least 50 cm thick overlying aeolian dune sands (Figure 182). Soil development consists of dark brown, charcoal-rich organic mat at 0-5 cm BS, with an underlying brown silt AB horizon at 5-19 cm BS. A strong brown silt Ab1 horizon extends from 19-24 cm BS, which is underlain by yellowish brown very fine sandy silts (C1 horizon) from 24-39 cm BS. The basal unit is olive very fine, very well-sorted sands (C2 horizon) from 40 cm BS to the end of excavation at 60 cm BS.

Figure 180. FAI-02011 aerial overview (view to north)

Figure 181. FAI-02011 overview (view to northeast)

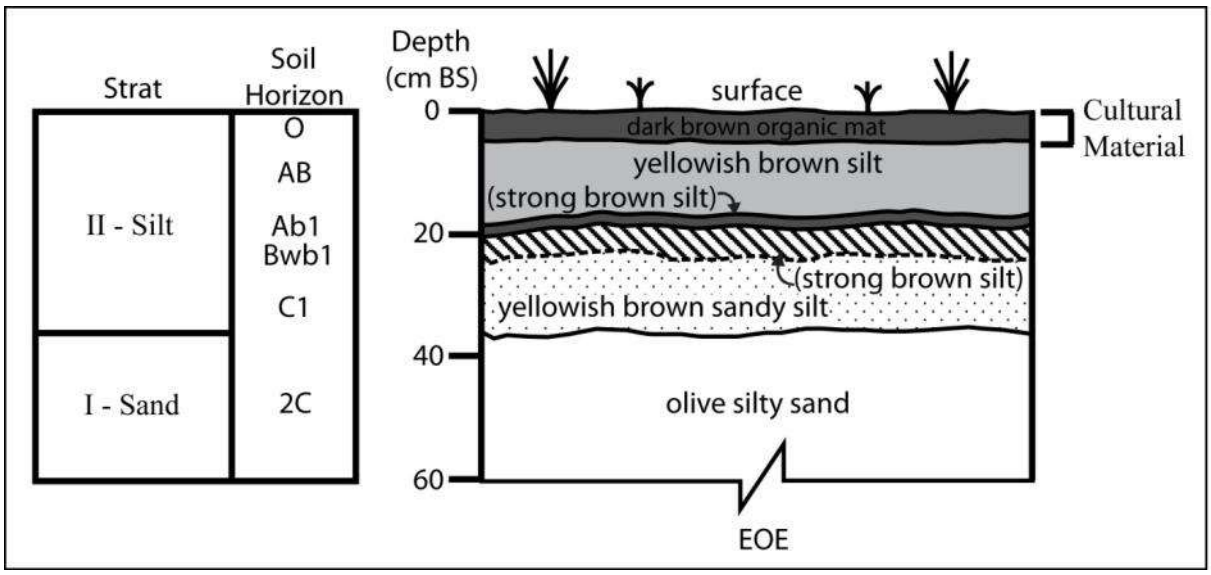

Figure 182. FAI-02011 stratigraphy

FAI-02012
Determination of Eligibility: Not evaluated

Site FAI-02012 is located on the crest of a long linear east-west trending vegetated dune (Figure 183) in the central portions of a northwest-southeast trending dune complex. Site elevation is 146 masl. The long, narrow landform is roughly 120 m east-west, and 5-10 m north-south, with a crest that has a slope of 0-5° The dune slopes at a 30-40° grade on its north and south sides, dropping 30 m to the valley floor below. The location provides an excellent view of the Tanana River and Fairbanks Hills to the north, while thick vegetation obscures the view to the south, east and west. The ecosystem is characterized as an open upland dry broadleaf/needleleaf forest. Vegetation consists of large aspen and white spruce, and an understory of high-bush cranberries, shrubs, ferns, grasses and moss (Figure 184).

Site FAI-02012 was found through subsurface testing. Cultural material was recovered from two of five test pits excavated. Six flakes, all of which are characterized as lithic debitage (Table 19) were recovered from depths of 10-30 cm BS.

Site stratigraphy consists of aeolian silts roughly 34 cm thick overlying aeolian dune sands (Figure 185). Soil development consists of dark brown, charcoal-rich organic mat at 0-4 cm BS, with an underlying brown silt AB horizon 4-18 cm BS. A reddish silt Bw horizon extends from 18-34 cm BS, which is underlain by reddish and gray very fine, very well sorted sands (C1 horizon) from 34-46 cm BS. A clay and iron-rich lamella extend from 18-24 cm BS. The basal unit is gray very fine, very well-sorted sands (2C horizon) from 46 cm BS to the end of excavation at 140 cm BS. The upper portions of the basal sand layer exhibit reddish staining characteristic of a buried soil horizon and likely represent a Bwb2 horizon.

Figure 183. FAI-02012 aerial overview (view to northwest)

Figure 184. FAI-02012 overview (view to north)

Table 19. FAI-02012 lithic debitage

Test Pit	Depth (cm BS)	Debitage Type	Size Class	Material Type	Color	Munsell Code
64	20-30	broken flake	7.5-10 mm	chert	reddish brown	2.5YR 4/3
64	20-30	flake fragment	10-20 mm	basalt	very dark gray	10YR 3/1
64	20-30	broken flake	10-20 mm	basalt	very dark gray	10YR 3/1
64	20-30	broken flake	10-20 mm	basalt	very dark gray	10YR 3/1
64	20-30	debris	10-20 mm	basalt	dark gray	10YR 4/1
65	10-20	flake fragment	7.5-10 mm	chert	dark gray	2.5Y 4/1

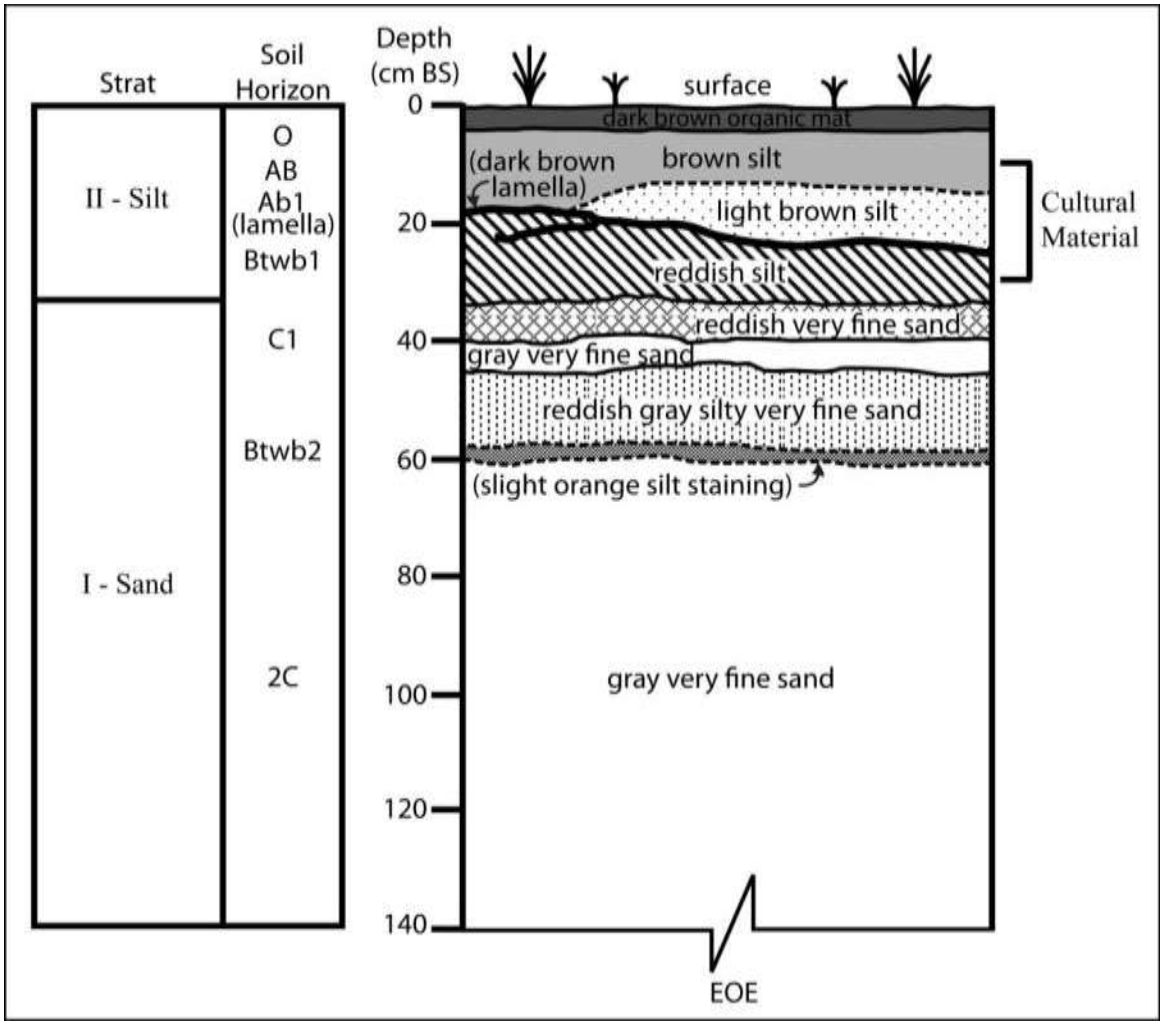

Figure 185. FAI-02012 stratigraphy

FAI-02013
Determination of Eligibility: Not evaluated

Site FAI-02013 is located on the northwestern lobe of an east-west trending dune (Figure 186) in the central portions of an extensive dune. Site elevation is 152 masl. The crest of the dune lobe has an 80 m x 10 m flat spot with a slope of 0-5°. The dune slopes at a 15-25° grade on its north, west and south sides, dropping 20-25 m to the valley floor below. The location provides an excellent view of the Tanana River and Fairbanks Hills to the north, while thick vegetation obscures the view to the south, east and west. The ecosystem is characterized as an open upland dry broadleaf/needleleaf forest. Vegetation consists of large aspen and white spruce, and an understory of high-bush cranberries, shrubs, ferns, grasses and moss (Figure 187).

Site FAI-02013 was found through subsurface testing. Cultural material was recovered from three of five test pits excavated. Forty two flakes, all of which are characterized as lithic debitage (Table 20) were recovered from depths of 13-50 cm BS. These include thirteen flakes found in situ at specific depths of 13, and 22-24 cm BS.

Site stratigraphy consists of aeolian silts roughly 40 cm thick overlying aeolian dune sands (Figure 188). Soil development consists of dark brown, charcoal-rich organic mat at 0-4 cm BS, with an underlying reddish brown silt AB horizon at 4-20 cm BS. The lower portions of the AB horizon contain a clay and iron-rich lamella that extends from 18-24 cm BS. Unaltered yellow silts (C1 horizon) extend from 20-40 cm BS. The basal unit is gray, very fine, very well-sorted sand (2C horizon) that extends from 40 cm BS to the end of test pit excavation at 140 cm BS.

Figure 186. FAI-02013 aerial overview (view to west)

Figure 187. FAI-02013 overview (view to north)

Table 20. FAI-02013 lithic debitage

Test Pit	Depth	Debitage Type	Size Class	Material Type	Color	Munsell Code
66	30-50	flake fragment	10-20 mm	chert	dark gray	2.5Y 4/1
66	30-50	flake fragment	20-30 mm	chert	dark gray	2.5Y 4/1
66	30-90	broken flake	10-20 mm	chert	(translucent) gray	5Y 5/1
68	0-10	flake fragment	20-30 mm	basalt	black	2.5Y 2.5/1
68	0-10	broken flake	10-20 mm	basalt	black	5Y 2.5/1
68	0-10	broken flake	10-20 mm	chert	very dark gray	5Y 3/1
68	0-10	flake fragment	7.5-10 mm	chert	very dark gray	5Y 3/1
68	0-10	flake fragment	10-20 mm	chert	very dark gray	5Y 3/1
68	0-10	flake fragment	10-20 mm	chert	(transl.) light gray	2.5Y 7/1
68	13	broken flake	10-20 mm	chert	(transl.) light gray & dark gray	2.5Y 7/1 & 4/1
68	20-23	complete flake	10-20 mm	chert	very dark gray	2.5Y 3/1
68	20-23	flake fragment	10-20 mm	chert	very dark gray	2.5Y 3/1
68	20-23	flake fragment	10-20 mm	chert	very dark gray	2.5Y 3/1
68	20-23	debris	10-20 mm	chert	very dark gray	2.5Y 3/1
68	20-23	flake fragment	7.5-10 mm	chert	very dark gray	2.5Y 3/1
68	20-23	flake fragment	10-20 mm	chert	very dark gray	2.5Y 3/1
68	20-23	broken flake	7.5-10 mm	chert	dark gray	2.5Y 4/1
68	20-23	flake fragment	10-20 mm	chert	very dark gray	2.5Y 3/1
68	20-23	flake fragment	7.5-10 mm	chert	black	2.5Y 2.5/1
68	20-23	flake fragment	7.5-10 mm	chert	black	2.5Y 2.5/1
68	20-23	flake fragment	7.5-10 mm	chert	very dark gray	2.5Y 3/1
68	20-23	flake fragment	7.5-10 mm	chert	very dark gray	2.5Y 3/1
68	20-23	flake fragment	5-7.5 mm	chert	dark gray	2.5Y 4/1
68	20-23	flake fragment	7.5-10 mm	chert	very dark gray	2.5Y 3/1
68	20-23	flake fragment	5-7.5 mm	chert	very dark gray	2.5Y 3/1
68	20-23	flake fragment	10-20 mm	chert	(transl.) light gray & dark gray	2.5Y 7/1 & 4/1
68	20-23	flake fragment	7.5-10 mm	chert	(transl.) light gray & dark gray	2.5Y 7/1 & 4/1

68	20-23	flake fragment	7.5-10 mm	chert	(transl.) light gray & dark gray	2.5Y 7/1 & 4/1
68	20-23	broken flake	10-20 mm	basalt	dark brown	10YR 3/3
68	20-25	complete flake	7.5-10 mm	chert	very dark gray	2.5Y 3/1
68	20-25	broken flake	7.5-10 mm	chert	very dark gray	2.5Y 3/1
68	20-25	flake fragment	7.5-10 mm	chert	(transl.) light gray	2.5Y 7/1
68	20-25	broken flake	10-20 mm	chert	(transl.) light gray	2.5Y 7/1
68	22	flake fragment	10-20 mm	chert	very dark gray	2.5Y 3/1
68	22	flake fragment	7.5-10 mm	chert	very dark gray	2.5Y 3/1
68	23	flake fragment	10-20 mm	chert	very dark gray	2.5Y 3/1
68	23	flake fragment	10-20 mm	chert	very dark gray	2.5Y 3/1
68	23	flake fragment	2.5-5 mm	chert	very dark gray	2.5Y 3/1
68	23	flake fragment	10-20 mm	chert	very dark gray & light gray	2.5Y 3/1 & 7/1
68	23	flake fragment	7.5-10 mm	chert	very dark gray	2.5Y 3/1
68	23	flake fragment	7.5-10 mm	chert	very dark gray	2.5Y 3/1
68	24	flake fragment	7.5-10 mm	chert	very dark gray	2.5Y 3/1

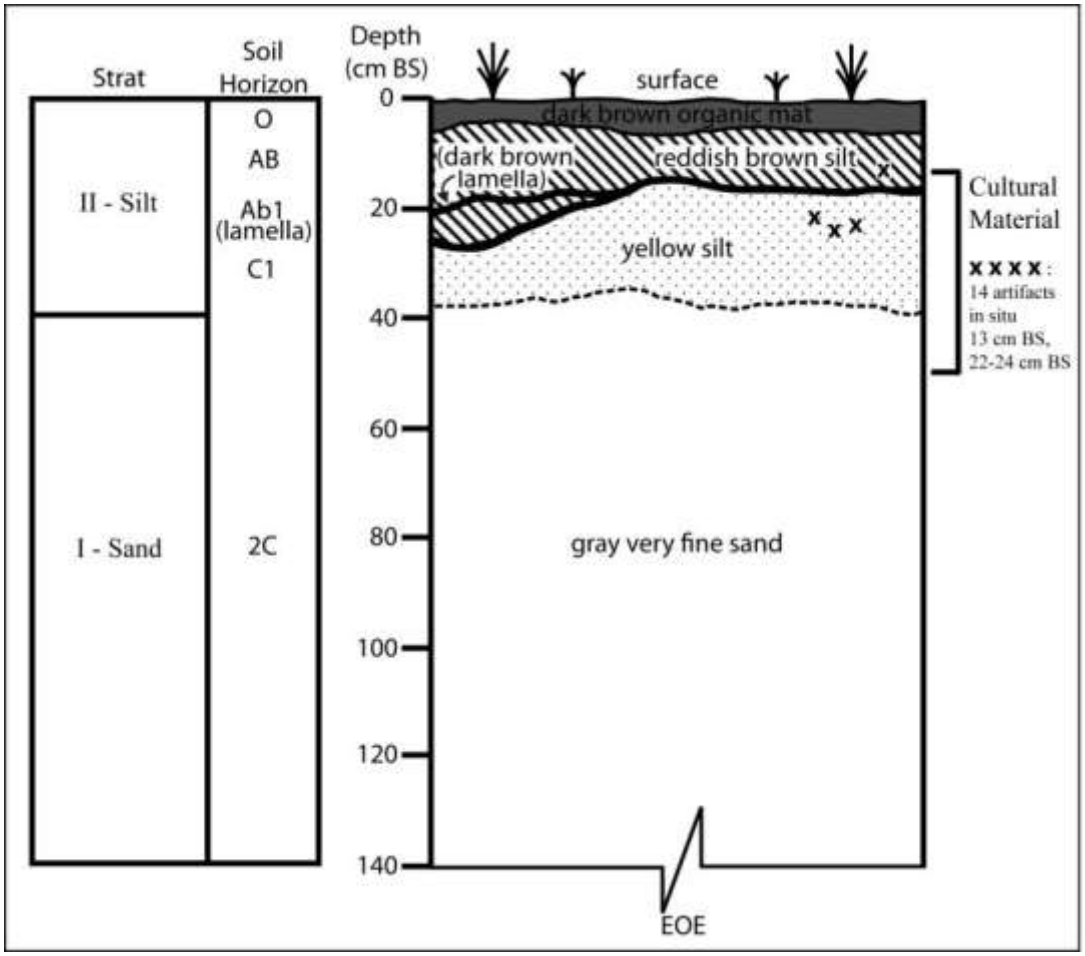

Figure 188. FAI-02013 stratigraphy

FAI-02014
Determination of Eligibility: Not evaluated

Site FAI-02014 is located on the ridge of a linear dune (Figure 189) in a vegetated dune complex. Site elevation is 142 masl. The site area along the top of the dune has a slope of 0-3°. The ridge trends north-south for approximately 60 m, and is 30-40 m east-west. It rises 10-15 m

above the surrounding Tanana flats at a slope of 20-25°. The location provides a clear view of Chena Ridge to the north and other hills surrounding Fairbanks. The ecosystem is described as an open upland dry broadleaf forest. Vegetation includes dense young aspen with a thick understory of rose, fireweed, grasses, and scattered moss cover (Figure 190). Thick deadfall covers the majority of the site area, with standing dead spruce dotting the knoll.

Site FAI-02014 was found through subsurface testing. One of four test pits excavated yielded one mottled very dark gray (5Y3/1)/pale translucent yellow (2.5Y 7/3) chert flake fragment, between 7.5 to 10 mm in diameter, from 15-30 cm BS.

Site stratigraphy is comprised of aeolian silts overlying aeolian dune sands (Figure 191). Soil development consists of a black organic mat 0-5 cm BS, which is underlain by a reddish brown silt to brown silt AB horizon at 5-20 cm BS. A prominent dark brown silt horizon extends from 20-22 cm BS. This horizon has characteristics typical of a buried Ab soil horizon; however, it also has several looping tendrils of clay and iron rich lamellae. Underlying this is a dark yellowish brown silt Bwb horizon 20-50 cm BS. The basal unit is unaltered grayish brown sandy silt (C horizon) from 50-130 cm BS.

Figure 189. FAI-02014 aerial overview (view to west)

Figure 190. FAI-02014 overview (view to north)

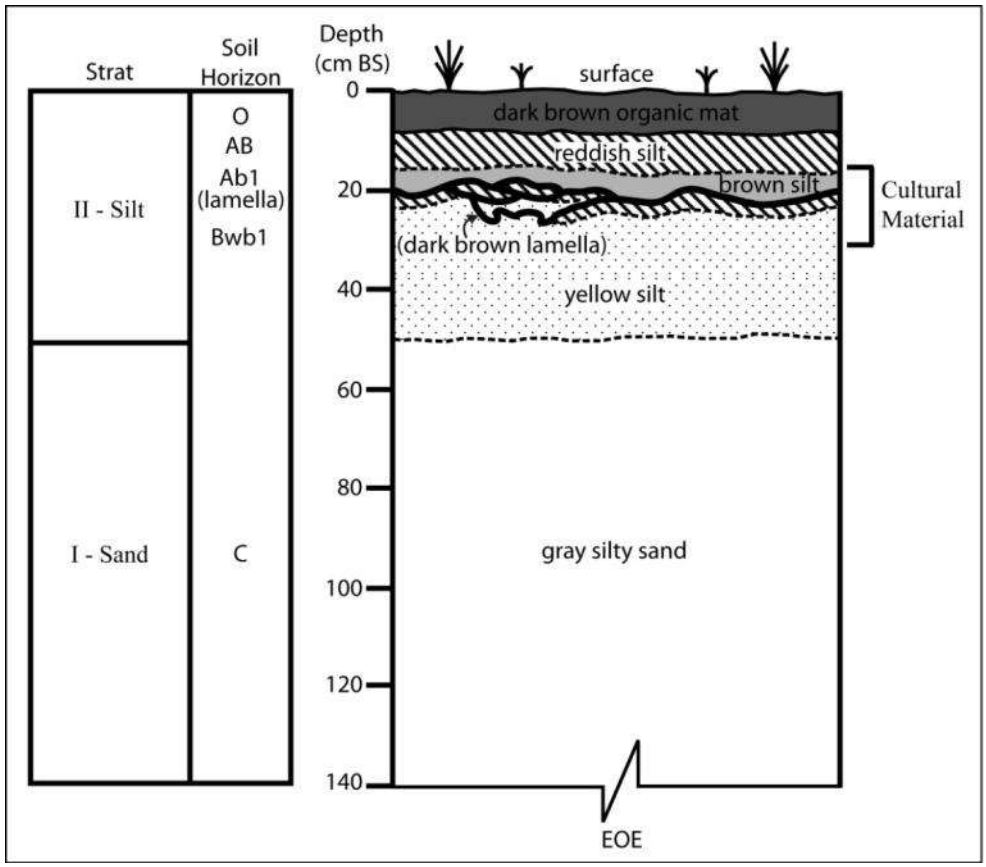

Figure 191. FAI-02014 stratigraphy

FAI-02020
Determination of Eligibility: Not evaluated

Site FAI-02020 is located on the crest of an ovate northeast-southwest trending vegetated sand dune (Figure 192). Site elevation is 159 masl. The crest of the dune is roughly 110 m x 20 m with a slope of 0-7°. The dune slopes at 20-35° on all sides dropping roughly 10-14 m to the valley floor below. The location provides an excellent 360° viewshed, with open views of the Tanana River and Fairbanks Hills to the north, and Wood River Buttes and Alaska Range to the south. The ecosystem is characterized as an open upland dry broadleaf/needleleaf forest. Vegetation consists of scattered burnt spruce and birch stumps, with an understory of young spruce and birch, mosses and forbs (Figure 193).

Site FAI-02020 was found through subsurface testing. Cultural material was recovered from two of two test pits excavated. One hundred forty four flakes, including two microblade fragments (Figure 194), and ten fragments of calcined bone were recovered from depths of 0-30 cm BS. An additional 13 pieces of flakestone were recovered from depths of 40-130 cm BS, including one flake found in situ at the depth of 66 cm BS. The attributes of lithic debitage are detailed in Table 21 while the microblade attributes are listed in
Table **22**. The calcined bone fragments were all too small (<7 mm in diameter) for species or element identification; however, their association with lithic artifacts and entirely calcined nature indicate they are of cultural origin.

Site stratigraphy consists of aeolian silts more than 140 cm thick overlying aeolian dune sands (Figure 195). Soil development consists of dark brown, charcoal-rich organic mat at 0-4 cm BS, with an underlying brown silt loam AB horizon 4-16 cm BS. A dark reddish brown silt loam Ab1 horizon extends from 18-21 cm BS, underneath which is a reddish silt Bwb1 horizon from 21-40 cm BS. Unaltered gray silt (C horizon) extends from 40 cm BS to the end of excavation at 140 cm BS

Figure 192. FAI-02020 aerial overview (view to northwest)

Figure 193. FAI-02020 overview (view to north)

Table 21. FAI-02020 lithic debitage

Test Pit	Depth (cm BS)	Debitage Type	Size Class	Material Type	Munsell Code
N/A	surface tree throw	flake fragment	10-20 mm	rhyolite	10YR 6/2
N/A	surface tree throw	flake fragment	10-20 mm	chert	5Y 3/1
N/A	surface tree throw	flake fragment	10-20 mm	chert	5Y 4/1 & 5Y 3/1
N/A	surface tree throw	flake fragment	10-20 mm	chert	5Y 5/1 & 5Y 3/1
N/A	surface tree throw	flake fragment	5-7.5 mm	chert	5Y 5/1 & 5Y 3/1
N/A	surface tree throw	flake fragment	5-7.5 mm	chert	5Y 4/1
N/A	surface tree throw	complete flake	7.5-10 mm	chert	5Y 4/1
N/A	surface tree throw	flake fragment	5-7.5 mm	chert	2.5Y 2.5/1
101	0-3	broken flake	10-20 mm	rhyolite	10YR 6/3
101	0-3	flake fragment	10-20 mm	rhyolite	10YR 6/2
101	0-3	broken flake	10-20 mm	chert	5Y 3/1
101	0-3	flake fragment	7.5-10 mm	chert	5Y 3/1
101	0-3	flake fragment	7.5-10 mm	chert	2.5Y 2.5/1
101	0-3	flake fragment	7.5-10 mm	chert	2.5Y 4/1
101	0-3	flake fragment	7.5-10 mm	chert	5Y 3/1
101	0-3	flake fragment	7.5-10 mm	chert	5Y 3/1
101	3-5	broken flake	10-20 mm	chert	10YR 5/4
101	3-5	flake fragment	10-20 mm	chert	5Y 2.5/1
101	3-5	flake fragment	7.5-10 mm	chert	5Y 2.5/1 & 5Y 7/2
101	3-5	flake fragment	10-20 mm	chert	2.5Y 4/1
101	3-5	flake fragment	7.5-10 mm	rhyolite	10YR 6/4
101	3-5	flake fragment	7.5-10 mm	chert	5Y 3/1
101	3-5	broken flake	7.5-10 mm	chert	5Y 3/1
101	3-5	broken flake	5-7.5 mm	chert	2.5Y 2.5/1
101	3-5	flake fragment	5-7.5 mm	chert	10 YR 4/3
101	5-10	complete flake	7.5-10 mm	chert	2.5Y 4/1
101	5-10	broken flake	10-20 mm	chert	5Y 4/1
101	5-10	flake fragment	10-20 mm	rhyolite	10YR 5/3
101	5-10	flake fragment	7.5-10 mm	rhyolite	10YR 5/3
101	5-10	flake fragment	7.5-10 mm	rhyolite	10YR 6/4
101	5-10	flake fragment	7.5-10 mm	rhyolite	10YR 7/1
101	5-10	flake fragment	10-20 mm	rhyolite	10YR 6/4
101	5-10	broken flake	10-20 mm	rhyolite	10YR 6/3
101	5-10	flake fragment	7.5-10 mm	rhyolite	10 YR 5/4
101	5-10	flake fragment	5-7.5 mm	chert	2.5Y 5/1
101	5-10	broken flake	10-20 mm	chert	5Y 2.5/1
101	5-10	flake fragment	10-20 mm	chert	5Y 2.5/1
101	5-10	flake fragment	7.5-10 mm	rhyolite	10YR 5/3
101	5-10	flake fragment	10-20 mm	rhyolite	7.5YR 5/4
101	10-15	flake fragment	30-40 mm	rhyolite	10YR 6/4
101	10-15	flake fragment	7.5-10 mm	chert	5Y 3/1
101	10-15	flake fragment	10-20 mm	chert	2.5Y 4/1
101	10-15	flake fragment	10-20 mm	rhyolite	10YR 5/3
101	10-15	broken flake	10-20 mm	rhyolite	10YR 6/4
101	10-15	flake fragment	10-20 mm	basalt	2.5Y 3/1
101	10-15	complete flake	7.5-10 mm	chert	10YR 5/1 & 5/3
101	10-15	flake fragment	10-20 mm	chert	10YR 4/1
101	10-15	flake fragment	10-20 mm	basalt	2.5Y 4/1
101	10-15	flake fragment	10-20 mm	basalt	2.5Y 5/2
101	10-15	flake fragment	7.5-10 mm	basalt	2.5Y 4/1
101	10-15	broken flake	7.5-10 mm	chert	10YR 3/1
101	10-15	broken flake	10-20 mm	rhyolite	10YR 7/3
101	10-15	flake fragment	7.5-10 mm	rhyolite	10YR 6/3
101	10-15	broken flake	10-20 mm	chert	10YR 6/3
101	10-15	broken flake	7.5-10 mm	chert	7.5YR 3/1
101	10-15	flake fragment	7.5-10 mm	chert	10YR 3/1
101	10-15	flake fragment	7.5-10 mm	basalt	2.5Y 2.5/1
101	10-15	flake fragment	10-20 mm	basalt	2.5Y 2.5/1
101	10-15	flake fragment	10-20 mm	rhyolite	10YR 6/4
101	10-15	flake fragment	7.5-10 mm	rhyolite	10YR 6/4
101	10-15	flake fragment	7.5-10 mm	rhyolite	7.5YR 5/4

Test Pit	Depth (cm BS)	Debitage Type	Size Class	Material Type	Munsell Code
101	10-15	flake fragment	10-20 mm	rhyolite	10RY 5/3
101	10-15	flake fragment	7.5-10 mm	rhyolite	10RY 6/4
101	10-15	flake fragment	10-20 mm	rhyolite	10RY 6/4
101	10-15	flake fragment	7.5-10 mm	rhyolite	10YR 5/3
101	10-15	complete flake	7.5-10 mm	rhyolite	10YR 5/3
101	10-15	flake fragment	7.5-10 mm	rhyolite	10YR 5/2
101	10-15	flake fragment	10-20 mm	basalt	10YR 4/2
101	10-15	flake fragment	10-20 mm	basalt	10YR 5/3
101	10-15	flake fragment	7.5-10 mm	basalt	10YR 4/1
101	10-15	flake fragment	7.5-10 mm	basalt	2.5Y 4/1
101	10-15	flake fragment	10-20 mm	basalt	10YR 4/1
101	10-15	flake fragment	5-7.5 mm	basalt	10YR 4/1
101	10-15	flake fragment	7.5-10 mm	basalt	10YR 4/1
101	10-15	flake fragment	7.5-10 mm	basalt	10YR 5/3
101	15-30	flake fragment	10-20 mm	rhyolite	10YR 4/3
101	15-30	flake fragment	10-20 mm	chert	10YR 4/1
101	15-30	flake fragment	7.5-10 mm	basalt	2.5Y 3/1
101	15-30	flake fragment	10-20 mm	chert	5Y 4/1
101	15-30	flake fragment	5-7.5 mm	rhyolite	10YR 6/3
101	15-30	flake fragment	10-20 mm	basalt	2.5Y 3/1
101	15-30	broken flake	10-20 mm	chert	5Y 3/1
101	15-30	flake fragment	10-20 mm	rhyolite	10YR 6/4
101	15-30	flake fragment	10-20 mm	chert	5Y 3/1
101	15-30	flake fragment	10-20 mm	chert	5Y 3/1
101	15-30	broken flake	7.5-10 mm	basalt	2.5Y 2.5/1
101	15-30	flake fragment	7.5-10 mm	chert	5Y 3/1
101	15-30	flake fragment	10-20 mm	basalt	2.5Y 4/1
101	15-30	complete flake	7.5-10 mm	chert	7.5YR 3/1
101	15-30	flake fragment	7.5-10 mm	chert	2.5Y 2.5/1
101	15-30	flake fragment	7.5-10 mm	chert	2.5Y 2.5/1
101	15-30	flake fragment	10-20 mm	chert	5Y 3/1
101	15-30	broken flake	20-30 mm	basalt	2.5Y 4/1
101	15-30	flake fragment	10-20 mm	basalt	2.5Y 4/1
101	15-30	flake fragment	10-20 mm	basalt	2.5Y 4/1
101	15-30	broken flake	10-20 mm	basalt	10YR 5/4
101	15-30	broken flake	10-20 mm	rhyolite	10YR 6/4
101	15-30	flake fragment	7.5-10 mm	rhyolite	10YR 5/4
101	15-30	flake fragment	10-20 mm	rhyolite	10YR 6/4
101	15-30	flake fragment	7.5-10 mm	basalt	2.5Y 2.5/1
101	15-30	flake fragment	10-20 mm	basalt	2.5Y 4/2
101	15-30	flake fragment	7.5-10 mm	rhyolite	10YR 5/3
101	15-30	flake fragment	7.5-10 mm	rhyolite	10YR 6/3
101	15-30	flake fragment	7.5-10 mm	rhyolite	10YR 8/4
101	15-30	flake fragment	.1-2.5 mm	rhyolite	10YR 7/3
101	30-68	flake fragment	30-40 mm	chert	5Y 6/2
101	30-68	flake fragment	10-20 mm	rhyolite	10YR 7/3
101	30-68	flake fragment	10-20 mm	basalt	5Y 4/1
101	30-68	flake fragment	10-20 mm	chert	2.5Y 4/1
101	30-68	broken flake	10-20 mm	rhyolite	10YR 6/4
101	30-68	broken flake	10-20 mm	chert	5Y 3/1
101	30-68	broken flake	10-20 mm	chert	2.5Y 4/1
101	30-68	broken flake	10-20 mm	basalt	5Y 3/1
101	60-68	broken flake	10-20 mm	chert	2.5Y 2.5/1
101	68-72	flake fragment	10-20 mm	rhyolite	5Y 5/1
101	90-120	broken flake	10-20 mm	basalt	5Y 3/1
101	120-130	broken flake	7.5-10 mm	chert	5Y 4/1
102	0-5	flake fragment	10-20 mm	chert	2.5Y 2.5/1
102	0-5	broken flake	10-20 mm	rhyolite	10YR 6/3
102	0-5	flake fragment	10-20 mm	chert	2.5YR 4/1
102	0-5	flake fragment	10-20 mm	chert	2.5YR 5/1
102	0-5	flake fragment	7.5-10 mm	chert	2.5Y 2.5/1
102	0-5	flake fragment	7.5-10 mm	chert	2.5Y 6/2
102	0-5	flake fragment	10-20 mm	rhyolite	10YR 5/4

Test Pit	Depth (cm BS)	Debitage Type	Size Class	Material Type	Munsell Code
102	0-5	flake fragment	7.5-10 mm	chert	5Y 2.5/1
102	0-5	flake fragment	5-7.5 mm	chert	5Y 2.5/1
102	0-5	complete flake	10-20 mm	chert	10YR 4/1
102	0-5	complete flake	7.5-10 mm	basalt	5Y 4/1
102	0-5	flake fragment	7.5-10 mm	chert	2.5Y 2.5/1
102	0-5	flake fragment	10-20 mm	chert	2.5Y 5/1
102	0-5	debris	30-40 mm	chert	2.5Y 4/1
102	5-20	flake fragment	10-20 mm	basalt	5Y 3/1
102	5-20	broken flake	10-20 mm	basalt	2.5Y 2.5/1
102	5-20	flake fragment	10-20 mm	chert	2.5YR 4/1
102	5-20	flake fragment	10-20 mm	rhyolite	10YR 6/3
102	5-20	flake fragment	10-20 mm	rhyolite	10YR 7/3
102	5-20	flake fragment	10-20 mm	chert	7.5YR 5/4
102	5-20	flake fragment	10-20 mm	chert	5Y 3/1
102	5-20	broken flake	10-20 mm	rhyolite	10YR 6/4
102	5-20	broken flake	10-20 mm	chert	7.5YR 4/3
102	5-20	broken flake	10-20 mm	chert	2.5Y 5/2
102	5-20	flake fragment	10-20 mm	rhyolite	10YR 5/3
102	5-20	broken flake	10-20 mm	chert	2.5Y 2.5/1
102	5-20	flake fragment	7.5-10 mm	basalt	2.5Y 2.5/1
102	5-20	flake fragment	7.5-10 mm	chert	10YR 3/2
102	5-20	broken flake	7.5-10 mm	rhyolite	10YR 6/3
102	5-20	flake fragment	7.5-10 mm	chert	5YR 3/1
102	5-20	complete flake	7.5-10 mm	rhyolite	7.5YR 5/3
102	5-20	flake fragment	10-20 mm	rhyolite	10YR 6/3
102	5-20	flake fragment	5-7.5 mm	basalt	2.5Y 3/1
102	5-20	complete flake	7.5-10 mm	basalt	2.5Y 4/1
102	5-20	broken flake	10-20 mm	rhyolite	10YR 6/4
102	5-20	broken flake	7.5-10 mm	rhyolite	7.5YR 6/4
102	5-20	debris	10-20 mm	chert	5Y 3/1
102	20-30	flake fragment	10-20 mm	rhyolite	2.5Y 7/2
102	40-75	broken flake	7.5-10 mm	chert	5Y 3/1

Table 22. FAI-02020 microblade attributes

TP	Depth (cm BS)	L (mm)	W (mm)	T (mm)	# of Arrises	Segment	RT	Material Type	Color	Munsell Code
101 a	10	14.1	8.8	2.4	1	prox	N	rhyolite	Lt yellowish brown	10YR 6/4
101 b	10-15	19.3	5.4	1.4	2	prox	N	chert	gray	5Y 5/1

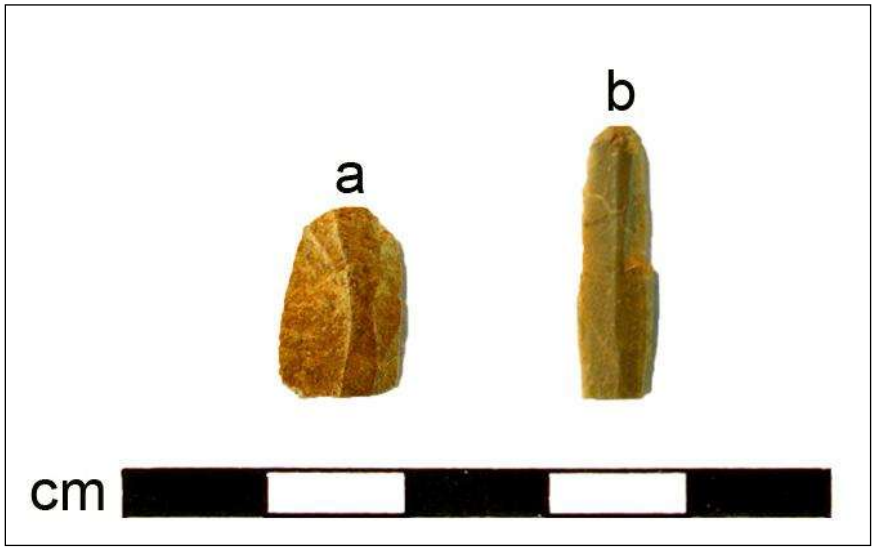

Figure 194. FAI-02020 microblades

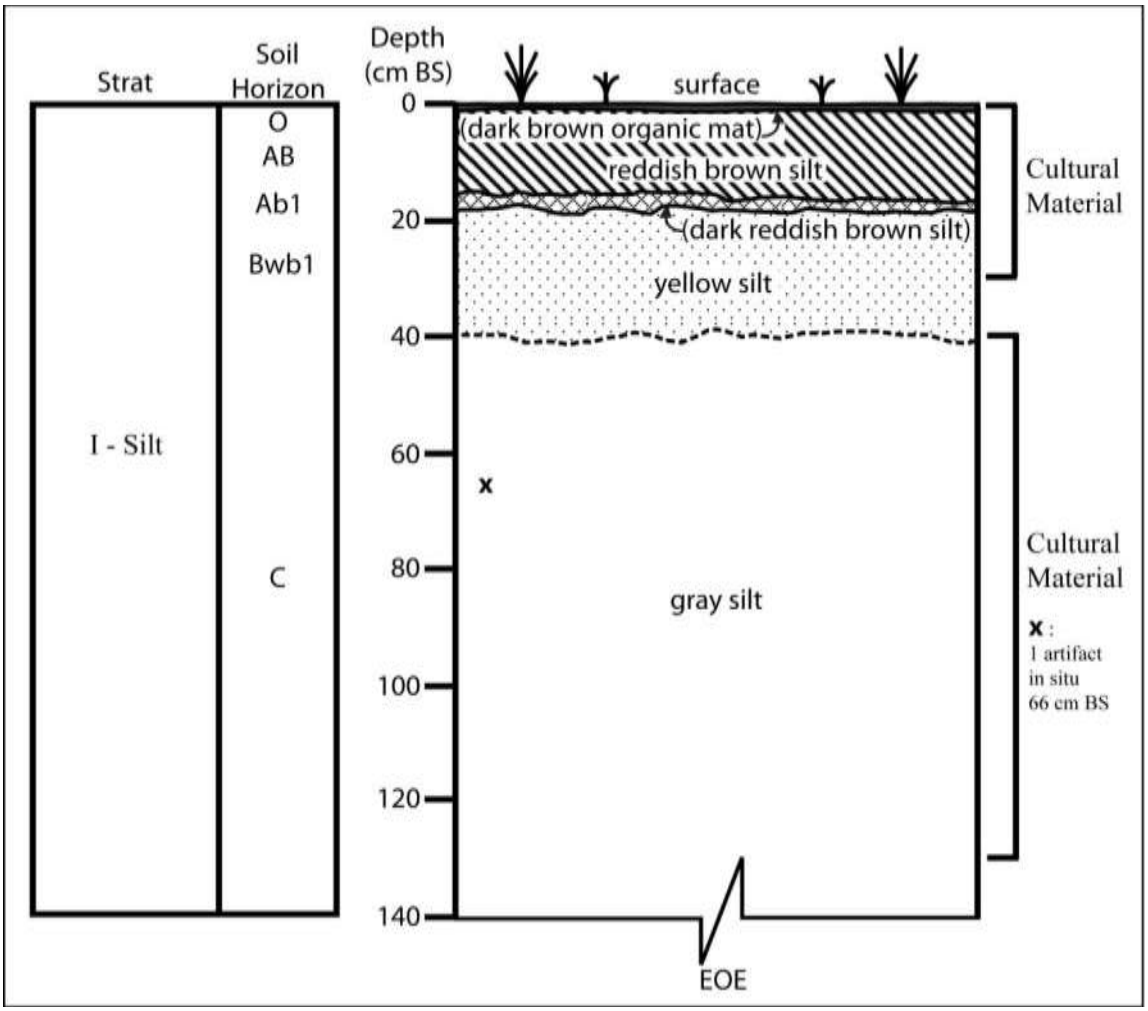

Figure 195. FAI-02020 stratigraphy

FAI-02021
Determination of Eligibility: Not evaluated

Site FAI-02021 is located on the southern edge of a linear northwest-southeast trending vegetated sand dune (Figure 196). Site elevation is 164 masl. The dune is roughly 250 m x 60 m. The site is located on a flat spot on the southern portion of the dune that has a slope of 3-10°. The site area is situated adjacent to the edge of the dune, directly above a 50-60° slope that drops 12-14 m to the valley floor below. This location provides an excellent 180° viewshed, with open views of the Alaska Range and Wood River Buttes to the south. The east, west and northern sides of the dune slope at 10-20°. The ecosystem is characterized as an open upland dry broadleaf/needleleaf forest. Vegetation consists of scattered white spruce and birch, with an understory of low-bush cranberries, grasses, dwarf birch, and forbs (Figure 196).

Site FAI-02021 was found through subsurface testing. Cultural material was recovered from two of five test pits excavated. Five pieces of flakestone debitage (Table 23) and three bone fragments were recovered from depths of 0-60 cm BS. The bone fragments were not calcined

and were too small for species or element identification. They were, however, found in association with lithic artifacts and are likely of cultural origin.

Site stratigraphy consists of aeolian silts roughly 125 cm thick overlying aeolian dune sands (Figure 197). Soil development consists of a dark brown, charcoal-rich organic mat at 0-4 cm BS, with an underlying brown silt loam AB horizon 4-22 cm BS. A dark reddish brown silt loam Ab1 horizon extends from 22-25 cm BS, underneath which is a reddish silt Bwb1 horizon from 25-40 cm BS. An unaltered light brown silt horizon extends from 40-125 cm BS, the middle portions of which contain discontinuous sand lenses. The basal unit is light brown very well-sorted sands from 125 cm BS to the end of excavation at 140 cm BS.

Table 23. FAI-02021 lithic debitage

Test Pit	Depth (cm BS)	Debitage Type	Size Class	Material Type	Color	Munsell Code
106	0-5	flake fragment	10-20 mm	basalt	brown	10YR 5/3
107	10-20	flake fragment	7.5-10 mm	chert	dark gray	10YR 4/1
107	10-20	flake fragment	7.5-10 mm	chert	dark gray	2.5Y 4/1
107	30-40	broken flake	7.5-10 mm	rhyolite	pale brown	10YR 6/3
107	50-60	flake fragment	10-20 mm	rhyolite	very pale brown	10YR 7/3

Figure 196. FAI-02021 overview (view to east)

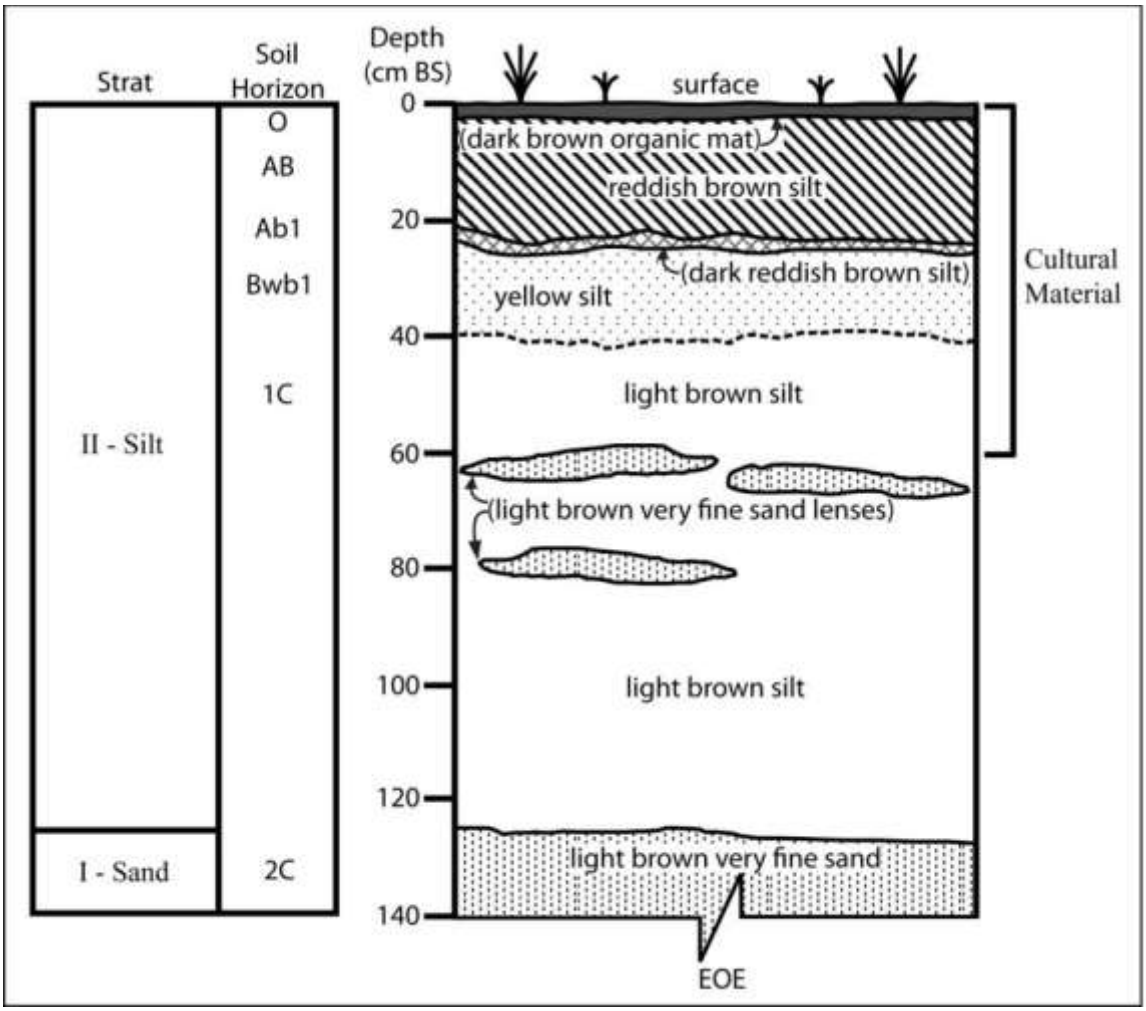

Figure 197. FAI-02021 stratigraphy

FAI-02022
Determination of Eligibility: Not evaluated

Site FAI-02022 is located on a vegetated sand dune (Figure 198). Site elevation is 156 masl. The dune is roughly 200 m long x 30-40 m wide. The site is located on a flat spot on the crest of the dune that has a slope of 3-10°. The dune slopes at a 15-20° on all sides dropping 8-10 m to the valley floor below. The location would offer 360° view; however, thick vegetation in the form of white spruce, birch, and dwarf birch obscures the viewshed (Figure 199).

Site FAI-02022 was found through subsurface testing. Cultural material was recovered from two of three test pits excavated. Eighteen flakes (Table 24) were recovered from depths of 0-40 cm BS; two flakes were recovered from depths of 40-80 cm BS. One biface fragment (Figure 200) was found at a depth range of 0-20 cm BS.

The biface fragment consists of an incomplete lateral and basal margin. It measures 47.8 mm long, 31.3 mm wide, and 15.8 mm maximum thickness. Large percussion flake scars cover both

intact faces. The flake scars are worn and weathered indicating the artifact spent substantial time on the surface prior to burial. The fractured surfaces are very rough in texture consistent thermal fracturing. The artifact is constructed of basalt that is oxidized and stained dark reddish brown (5 YR3/3), further evidence that the artifact was subjected to very high temperatures. It seems likely that, after discard, the artifact spent a long time on the ground surface and was affected and fractured by one or more forest fires before burial.

Site stratigraphy consists of aeolian silts at least 125 cm thick overlying aeolian dune sands (Figure 201). Soil development consists of dark brown, charcoal-rich organic mat at 0-6 cm BS, with an underlying brown silt loam AB horizon 6-18 cm BS. A reddish silt Bw horizon extends from 18-24 cm BS. A dark reddish brown silt loam Ab1 horizon extends from 24-30 cm BS. Unaltered yellow and light brown silt (C horizon) extends from 30 cm BS to the end of excavation at 125 cm BS.

Figure 198. FAI-02022 aerial overview (view to west)

Figure 199. FAI-02022 overview (view to west)

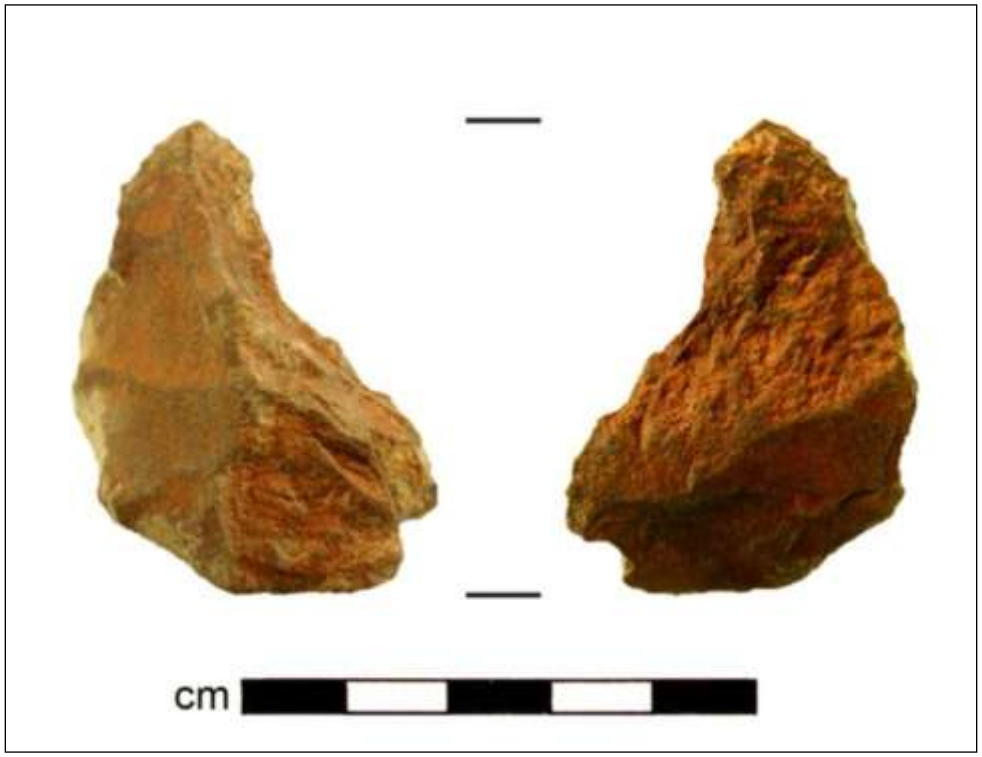

Figure 200. FAI-02022 biface fragment

Table 24. FAI-02022 lithic debitage

Test Pit	Depth (cm BS)	Debitage Type	Size Class	Material Type	Color	Munsell Code
108	0-20	broken flake	7.5-10 mm	chert	very dark gray	10YR 3/1
108	0-20	flake fragment	10-20 mm	basalt	very dark gray	10YR 3/1
108	0-20	flake fragment	7.5-10 mm	rhyolite	pale brown	10YR 6/3
108	0-20	flake fragment	10-20 mm	chert	gray	5Y 5/1
108	0-20	flake fragment	7.5-10 mm	rhyolite	light brownish gray	10YR 6/2
108	0-20	broken flake	7.5-10 mm	rhyolite	light brownish gray	10YR 6/2
108	0-20	flake fragment	10-20 mm	chert	very dark gray	5Y 3/1
108	0-20	broken flake	10-20 mm	rhyolite	pale brown	10YR 6/3
108	0-20	flake fragment	10-20 mm	Rhyolite`	light reddish brown	5YR 6/4
108	0-20	debris	10-20 mm	rhyolite	weak red	2.5YR 5/2
108	0-20	broken flake	10-20 mm	rhyolite	light brownish gray	10YR 6/2
108	0-20	flake fragment	10-20 mm	basalt	very dark gray	5Y 3/1
108	20-40	flake fragment	10-20 mm	rhyolite	light yellowish brown	10YR 6/4
108	20-40	flake fragment	10-20 mm	rhyolite	light yellowish brown	10YR 6/4
108	20-40	flake fragment	10-20 mm	chert	yellowish brown	10YR 5/4
108	20-40	broken flake	10-20 mm	chert	dark gray	2.5Y 4/1
108	40-80	broken flake	10-20 mm	chert	olive gray	5Y 5/2
108	40-80	flake fragment	10-20 mm	basalt	dark gray	2.5Y 4/1
109	5-15	flake fragment	5-7.5 mm	basalt	dark gray	2.5Y 4/1
109	15-25	flake fragment	10-20 mm	chert	very dark gray	5Y 3/1

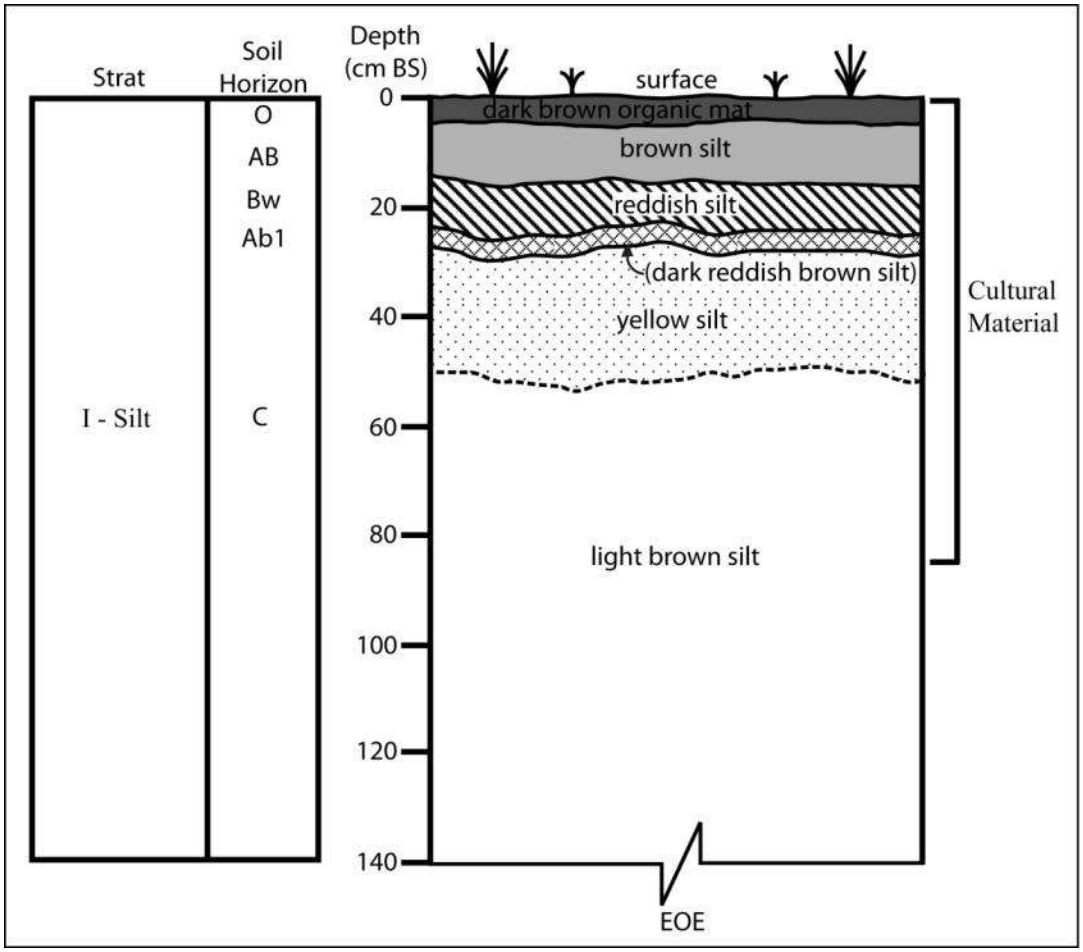

Figure 201. FAI-02022 stratigraphy

FAI-02023
Determination of Eligibility: Not evaluated

Site FAI-02023 is located on the southern portion of a vegetated sand dune. Site elevation is 149 masl. The dune is roughly 300 m long x 100 m wide with the site located on the crest of lobe that is 20 m wide and extends 40 m to the south of the main dune. Site area has a slope of 3-15°. The south, east and west slopes of the dune lobe drop at 20-40° roughly 15-20 m to the flats below. The dune slopes at a 15-20° on all sides dropping 8-10 m to the valley floor below. The location offers 180° view, with open views to the south of the Wood River Buttes and Alaska Range in the distance. The ecosystem is characterized as a dry needleleaf-broadleaf forest. Vegetation consists of burnt aspen and spruce stumps with an understory of heavy dead fall, young aspen and forbs (Figure 202).

Site FAI-02023 was found through subsurface testing. Cultural material was recovered from two of three test pits excavated. Fifteen flakes were recovered from depths of 0-35 cm BS. All of the recovered artifacts are characterized as lithic debitage (Table 25).

Site stratigraphy consists of aeolian silts between 35-50 cm thick overlying aeolian dune sands (Figure 203). Soil development consists of dark brown, charcoal-rich organic mat at 0-3 cm BS, with an underlying brown silt AB horizon at 3-16 cm BS. Unaltered light brown silt (C1 horizon) extends from 16-22 cm BS, underneath which is a dark reddish brown silt Ab horizon from 23-25 cm BS. A reddish silt Bwb horizon extends from 25-34 cm BS, underneath which is yellowish fine sandy silt (C2 horizon) from 34-48 cm BS. Unaltered light brown very well-sorted, very fine sands (2C horizon) extend from 48 cm BS to the end of excavation at 115 cm BS.

Figure 202. FAI-02023 overview (view to north)

Table 25. FAI-02023 lithic debitage

Test Pit	Depth (cm BS)	Debitage Type	Size Class	Material Type	Color	Munsell Code
111	0-10	flake fragment	10-20 mm	rhyolite	light brown	7.5YR 6/4
112	0-5	flake fragment	10-20 mm	rhyolite	brown	7.5YR 5/3
112	0-5	broken flake	10-20 mm	rhyolite	brown	10YR 5/3
112	5-15	broken flake	10-20 mm	basalt	dark gray	2.5Y 4/1
112	5-15	broken flake	7.5-10 mm	rhyolite	light yellowish brown	10YR 6/4
112	5-15	broken flake	7.5-10 mm	chalcedony	light gray (transl.)	2.5Y 7/1
112	15-25	broken flake	10-20 mm	rhyolite	grayish brown	2.5Y 5/2
112	15-25	flake fragment	10-20 mm	rhyolite	light gray	10YR 7/1
112	15-25	broken flake	10-20 mm	rhyolite	gray	10YR 6/1
112	15-25	broken flake	7.5-10 mm	rhyolite	light brownish gray	10YR 6/2
112	15-25	flake fragment	7.5-10 mm	rhyolite	pale brown & black	10YR 6/3
112	25-35	flake fragment	10-20 mm	rhyolite	grayish brown	10YR 5/2
112	25-35	flake fragment	7.5-10 mm	rhyolite	light gray	2.5Y 7/2
112	25-35	flake fragment	7.5-10 mm	rhyolite	light gray	10YR 7/2
112	25-35	broken flake	5-7.5 mm	chert	very pale brown	10YR 7/4

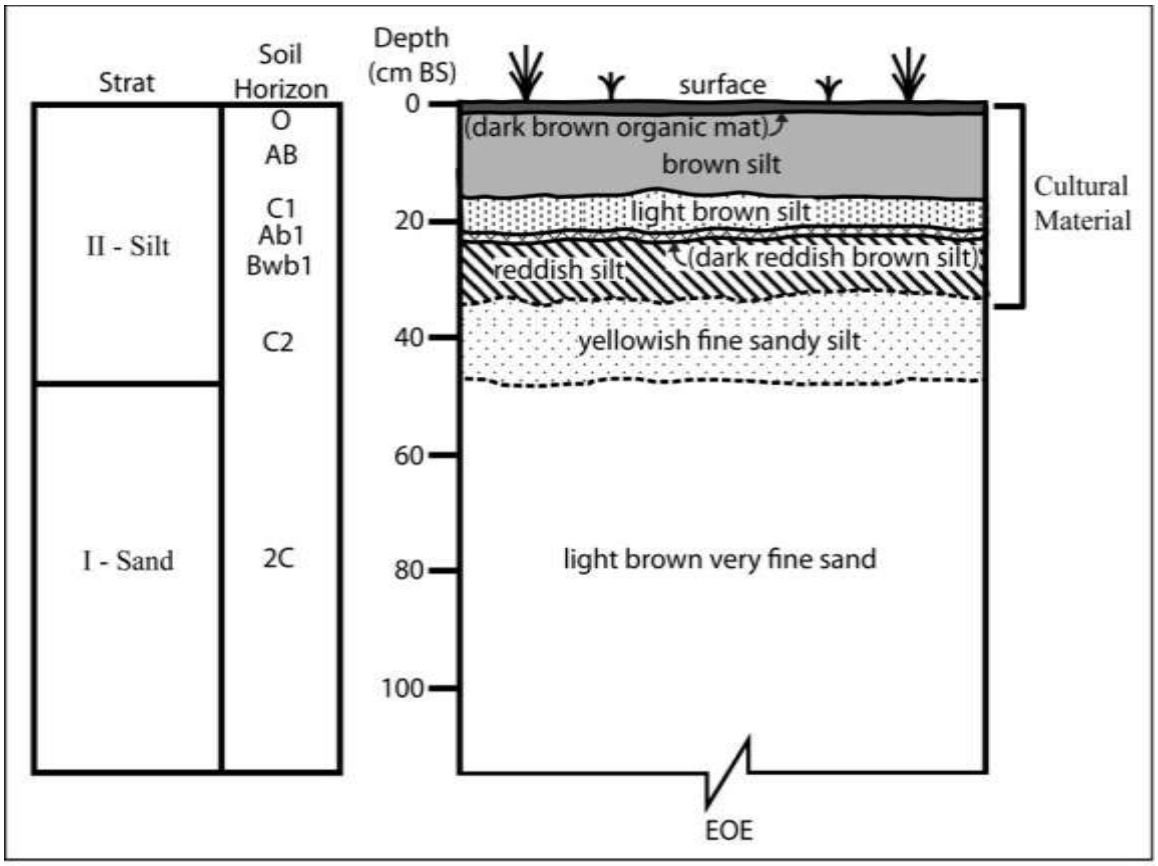

Figure 203. FAI-02023 stratigraphy

FAI-02024
Determination of Eligibility: Not evaluated

Site FAI-02024 is located on the crest of a vegetated sand dune (Figure 204). Site elevation is 148 masl. The dune is roughly 120 m x 40 m. The site is located on the crest of lobe that is 20 m wide and extends 40 m to the south of the main dune. The site area has a slope of 3-15°. The south, east and west slopes of the dune lobe drop at 20-40° roughly 15-20 m to the flats below. The location offers 180° view, with open views to the south of the Wood River Buttes and Alaska Range in the distance. The ecosystem is characterized as a broadleaf-needleaf forest. Vegetation consists of burnt aspen and spruce stumps with an understory of heavy dead fall, young aspen and forbs (Figure 205).

Site FAI-02024 was found through subsurface testing. Two chert flakes were recovered from one of five test pits excavated. The first of these is a flake fragment, made of light yellowish brown (10YR 6/4) chert between 20-30 mm in diameter, found at depths of 5-15 cm BS. The second is a flake fragment, made of dark gray (5Y 4/1) chert 10-20 mm in diameter, recovered from depths of 30-60 cm BS.

Site stratigraphy consists of aeolian silts 40 cm thick overlying aeolian dune sands (Figure 206). Soil development consists of dark brown, charcoal-rich organic mat at 0-4 cm BS, with an

underlying pale brown silt AB horizon at 4-18 cm BS. A strong brown silt Ab horizon extends from 18-28 cm BS, underneath which is yellowish brown silt Bwb1 horizon from 28-40 cm BS. The basal unit identified is light grayish brown fine sandy silt (C horizon) from 40 cm BS to the end of excavation at 120 cm BS.

Figure 204. FAI-02024 aerial overview (view to north)

Figure 205. FAI-02024 overview (view to west)

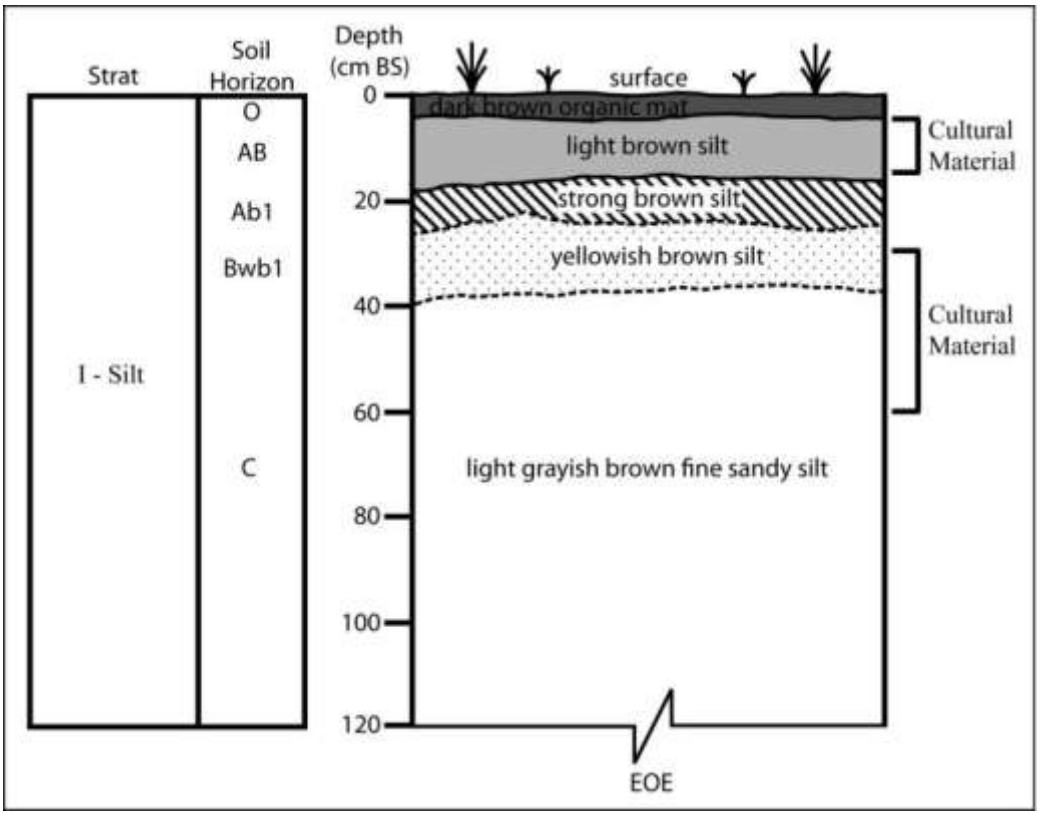

Figure 206. FAI-02024 stratigraphy

FAI-02025
Determination of Eligibility: Not evaluated

Site FAI-02025 is located on a vegetated sand dune. Site elevation is 153 masl. The dune is ovate, roughly 150 m x 75 m. The site is located on the crest of the dune in an area that has a slope of 0-15°. The dune slopes at 20-35° on all sides dropping 12-16 m to the flats below. The vantage point provides a commanding 360° view, with views of the Wood River Buttes and Alaska Range to the south, Clear Creek Butte to the east, and the Fairbanks hills to the north. Vegetation over most of the site consists of burnt aspen and spruce stumps with an understory of heavy dead fall, young aspen and forbs (Figure 207); a stand of living spruce and aspen grows on the western side of the site.

Site FAI-02025 was found through subsurface testing. Cultural material was recovered from three of six test pits excavated. Ten flakes were recovered from depths of 0-25 cm BS. All of the recovered artifacts are characterized as lithic debitage (Table 26). One of the flakes is made of obsidian that has been sourced via XRF elemental analysis to the Batza Tena source on the Koyukuk River more than 400 km to the north (Appendix 1).

Site stratigraphy consists of aeolian silts at least 120 cm thick overlying aeolian dune sands (Figure 208). Soil development consists of dark brown, charcoal-rich organic mat at 0-4 cm BS, with an underlying strong brown silt AB horizon at 4-10 cm BS, underneath which is a reddish brown silt Bw horizon from 10-18 cm BS. A strong brown silt Ab horizon extends from 18-21 cm BS, underneath which is reddish brown silt Bwb horizon from 21-30 cm BS. Unaltered yellow and light brown silts (C horizon) were encountered from 30 cm BS to the end of excavation at120 cm BS.

Figure 207. FAI-02025 overview (view to south)

Table 26. FAI-02025 lithic debitage

Test Pit	Depth (cm BS)	Debitage Type	Size Class	Material Type	Color	Munsell Code
124	0-5	flake fragment	10-20 mm	obsidian	black	2.5Y 2.5/1
124	0-5	broken flake	10-20 mm	chert	grayish brown	2.5Y 5/2
124	5-15	complete flake	10-20 mm	chert	gray	2.5Y 5/1
124	5-15	debris	10-20 mm	chert	gray	2.5Y 5/1
124	5-15	flake fragment	10-20 mm	chert	gray	2.5Y 5/1
124	5-15	broken flake	7.5-10 mm	chert	gray & reddish brown	2.5Y 5/1 & 5YR 5/3
124	5-15	flake fragment	7.5-10 mm	chert	grayish brown	2.5Y 5/2
124	5-15	broken flake	7.5-10 mm	chert	grayish brown	2.5Y 5/1
125	10-25	flake fragment	7.5-10 mm	rhyolite	light gray	10YR 7/2
126	0-20	flake fragment	5-7.5 mm	chert	dark gray	5Y 4/1

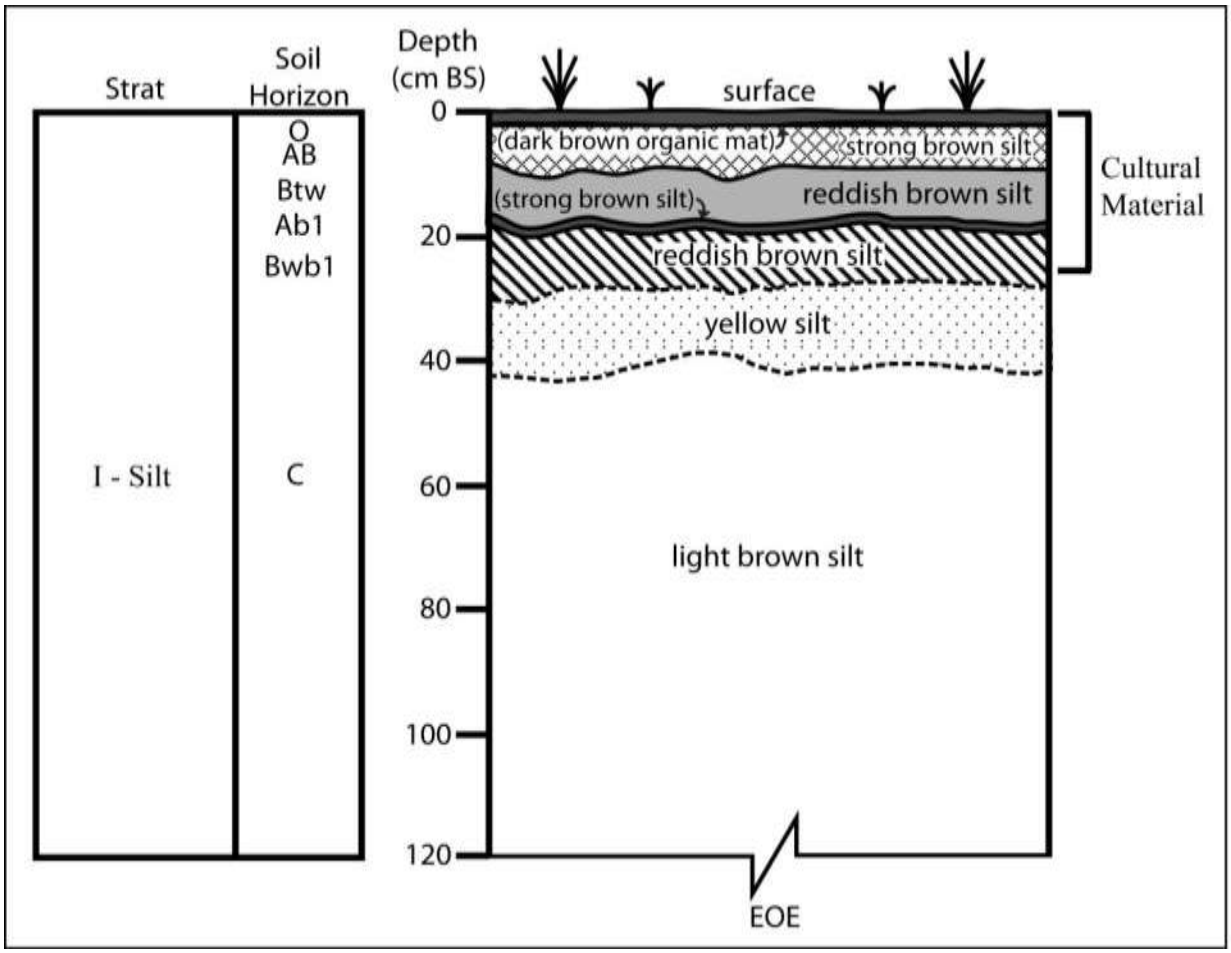

Figure 208. FAI-02025 stratigraphy

FAI-02026
Determination of Eligibility: Not evaluated

Site FAI-02026 is located on a vegetated sand dune. Site elevation is 154 masl. The dune is ovate, roughly 250 m x 150 m. The site is located on the crest of the dune in an area that has a slope of 0-10°. The dune slopes at 20-30° on all sides dropping 12-16 m to the flats below. The vantage point provides a commanding 360° view, with views of the Wood River Buttes and Alaska Range to the south, Clear Creek Butte to the east, and the Fairbanks hills to the north. Vegetation consists of burnt aspen and spruce stumps with an understory of thick deadfall, young aspen and forbs (Figure 209).

Site FAI-02026 was found through subsurface testing. Cultural material was recovered from five of six test pits excavated. Sixty-six flakes (Table 27) were recovered from depths of 0-40 cm BS; two microblades (Table 28; Figure 210) were recovered from depths of 0-20 cm BS; and one projectile point medial fragment (Figure 211) was recovered from 5-18 cm BS. The projectile point is a medial fragment made of light yellowish brown (2.5Y 6/3) and dark gray (4/N) rhyolite. It measures 15.8 mm long, 23.1 maximum width, and 6 mm maximum thickness.

Site stratigraphy consists of aeolian silts at least 130 cm thick overlying aeolian dune sands (Figure 212). Soil development consists of dark brown, charcoal-rich organic mat at 0-2 cm BS, with an underlying strong brown silt AB horizon at 2-18 cm BS. Underlying this is a strong reddish brown silt Ab horizon, which is in turn underlain by a reddish silt Bwb horizon extending from 22-30 cm BS. Unaltered light brown and yellow silt (C horizon) extends from 30 cm BS to the end of excavation at 130 cm BS.

Figure 209. FAI-02026 overview (view to north)

Table 27. FAI-02026 lithic debitage

Test Pit	Depth (cm BS)	Debitage Type	Size Class	Material Type	Color	Munsell Code
130	0-20	broken flake	10-20 mm	rhyolite	very pale brown	10YR 7/3
130	0-20	flake fragment	20-30 mm	rhyolite	very pale brown	10YR 7/3
130	0-20	broken flake	10-20 mm	rhyolite	very pale brown	10YR 7/3
130	0-20	flake fragment	10-20 mm	rhyolite	very pale brown	10YR 7/3
130	0-20	flake fragment	10-20 mm	rhyolite	very pale brown	10YR 7/3
130	0-20	flake fragment	10-20 mm	rhyolite	very pale brown	10YR 7/3
130	0-20	flake fragment	7.5-10 mm	rhyolite	very pale brown	10YR 7/3
130	0-20	flake fragment	20-30 mm	rhyolite	very pale brown	10YR 7/3
130	0-20	flake fragment	7.5-10 mm	rhyolite	pale brown	10YR 6/3
130	0-20	complete flake	5-7.5 mm	rhyolite	pink	7.5YR 7/3
130	0-20	flake fragment	10-20 mm	rhyolite	light brown	7.5YR 6/4
130	0-20	broken flake	10-20 mm	rhyolite	light brownish gray	10YR 6/2
130	0-20	flake fragment	10-20 mm	rhyolite	very pale brown	10YR 7/3
130	0-20	complete flake	10-20 mm	rhyolite	very pale brown	10YR 7/3
130	0-20	broken flake	10-20 mm	rhyolite	light brown	7.5YR 6/4
130	20-40	flake fragment	7.5-10 mm	rhyolite	very pale brown	10YR 7/3
130	20-40	flake fragment	10-20 mm	rhyolite	light gray	10YR 7/2
130	20-40	flake fragment	10-20 mm	rhyolite	light yellowish brown	10YR 6/4
130	20-40	flake fragment	10-20 mm	rhyolite	light gray	10YR 7/2
130	20-40	flake fragment	5-7.5 mm	rhyolite	light gray	10YR 7/2
130	20-40	flake fragment	10-20 mm	rhyolite	very pale brown	10YR 7/3
130	20-40	flake fragment	7.5-10 mm	rhyolite	light gray	10YR 7/2
130	20-40	flake fragment	7.5-10 mm	rhyolite	light gray	10YR 7/2
130	20-40	flake fragment	7.5-10 mm	rhyolite	light gray	10YR 7/2
130	40-55	flake fragment	10-20 mm	rhyolite	very pale brown	10YR 7/3
131	0-5	flake fragment	10-20 mm	chert	black	2.5/N
131	0-5	flake fragment	10-20 mm	chert	very dark gray	3/N
131	5-15	flake fragment	7.5-10 mm	basalt	dark gray	5Y 4/1
131	5-15	flake fragment	7.5-10 mm	basalt	dark gray	4/N
131	15-20	flake fragment	7.5-10 mm	chert	dark gray	4/N
131	15-20	flake fragment	7.5-10 mm	chert	(translucent) dark gray	4/N
131	15-20	flake fragment	7.5-10 mm	chert	very dark gray	3/N
131	20-25	flake fragment	10-20 mm	chert	dark gray	4/N
131	20-25	flake fragment	10-20 mm	chert	very dark gray	3/N
131	20-25	flake fragment	10-20 mm	rhyolite	very pale brown	10YR 7/3
131	25-30	broken flake	7.5-10 mm	chert	very dark gray	3/N
131	25-30	broken flake	7.5-10 mm	chert	very dark gray	3/N
131	25-30	broken flake	7.5-10 mm	chert	very dark gray	3/N
131	25-30	flake fragment	5-7.5 mm	chert	very dark gray	3/N
131	25-30	flake fragment	10-20 mm	chert	dark gray	4/N
131	25-30	flake fragment	10-20 mm	rhyolite	gray	2.5Y 6/1
131	25-30	flake fragment	7.5-10 mm	rhyolite	light brownish gray	2.5Y 6/2
131	25-30	broken flake	10-20 mm	chert	reddish brown	5YR 4/3
132	5-15	flake fragment	7.5-10 mm	chert	dark gray	4/N
132	15-25	broken flake	7.5-10 mm	rhyolite	grayish brown	10YR 5/2
133	0-10	broken flake	7.5-10 mm	chert	very dark gray	3/N
133	15-25	flake fragment	10-20 mm	rhyolite	light brownish gray	10YR 6/2
133	15-25	flake fragment	10-20 mm	chert	brown	7.5YR 4/2
133	15-25	broken flake	7.5-10 mm	basalt	gray	5Y 5/1
134	0-10	flake fragment	10-20 mm	chert	gray	5Y 5/1
134	0-10	flake fragment	10-20 mm	chert	dark gray	5Y 4/1
134	0-10	broken flake	10-20 mm	rhyolite	gray	5/N
134	0-10	complete flake	7.5-10 mm	chert	gray	5Y 5/1
134	0-10	flake fragment	7.5-10 mm	chert	pale brown	10YR 6/3
134	10-20	flake fragment	7.5-10 mm	rhyolite	light yellowish brown	10YR 6/4
134	10-20	flake fragment	10-20 mm	rhyolite	very pale brown	10YR 7/3
134	10-20	flake fragment	7.5-10 mm	rhyolite	light yellowish brown	10YR 6/4
134	10-20	flake fragment	10-20 mm	rhyolite	light yellowish brown	10YR 6/4
134	10-20	broken flake	10-20 mm	chert	reddish brown	5YR 5/3
134	20-30	flake fragment	7.5-10 mm	rhyolite	light gray	2.5Y 7/2
134	20-30	flake fragment	5-7.5 mm	rhyolite	light brownish gray	2.5Y 6/2
134	20-30	broken flake	7.5-10 mm	rhyolite	pale brown	10YR 6/3

Test Pit	Depth (cm BS)	Debitage Type	Size Class	Material Type	Color	Munsell Code
134	20-30	broken flake	7.5-10 mm	chert	(translucent) black	2.5/N
134	20-30	flake fragment	7.5-10 mm	chert	(translucent) black	2.5/N
134	30-40	flake fragment	10-20 mm	rhyolite	pale brown	10YR 6/3
134	30-40	broken flake	5-7.5 mm	chert	gray	5Y 5/1

Table 28. FAI-02026 microblade attributes

TP	Depth (cm BS)	Material Type	L (mm)	W (mm)	T (mm)	# of Arrises	Segment	RT	Color	Munsell Code
130 (a)	0-20	rhyolite	15.7	5.0	1.3	2	med	N	pale brown	10YR 6/3
133 (b)	18-20	chert	16.0	6.7	1.6	2	prox	N	reddish brown	5YR 4/3

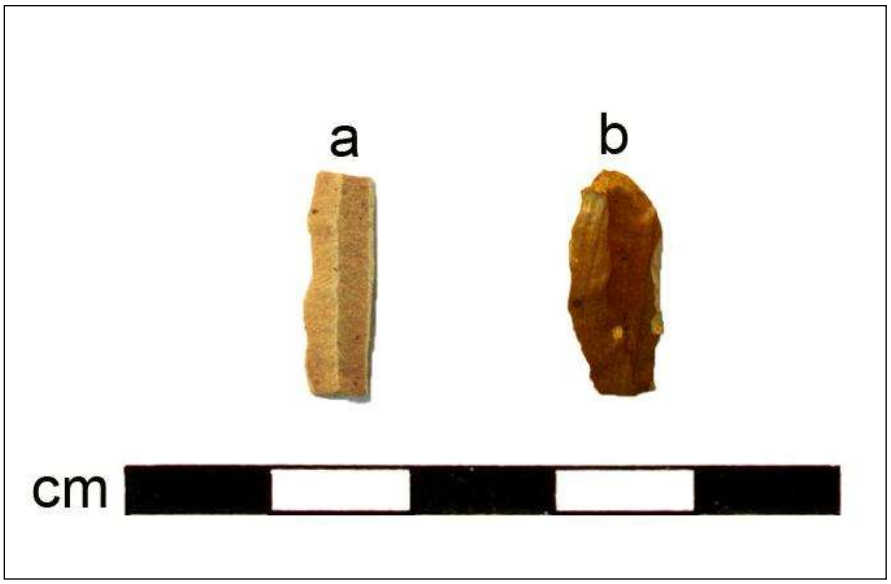

Figure 210. FAI-02026 microblades

Figure 211. FAI-02026 projectile point fragment

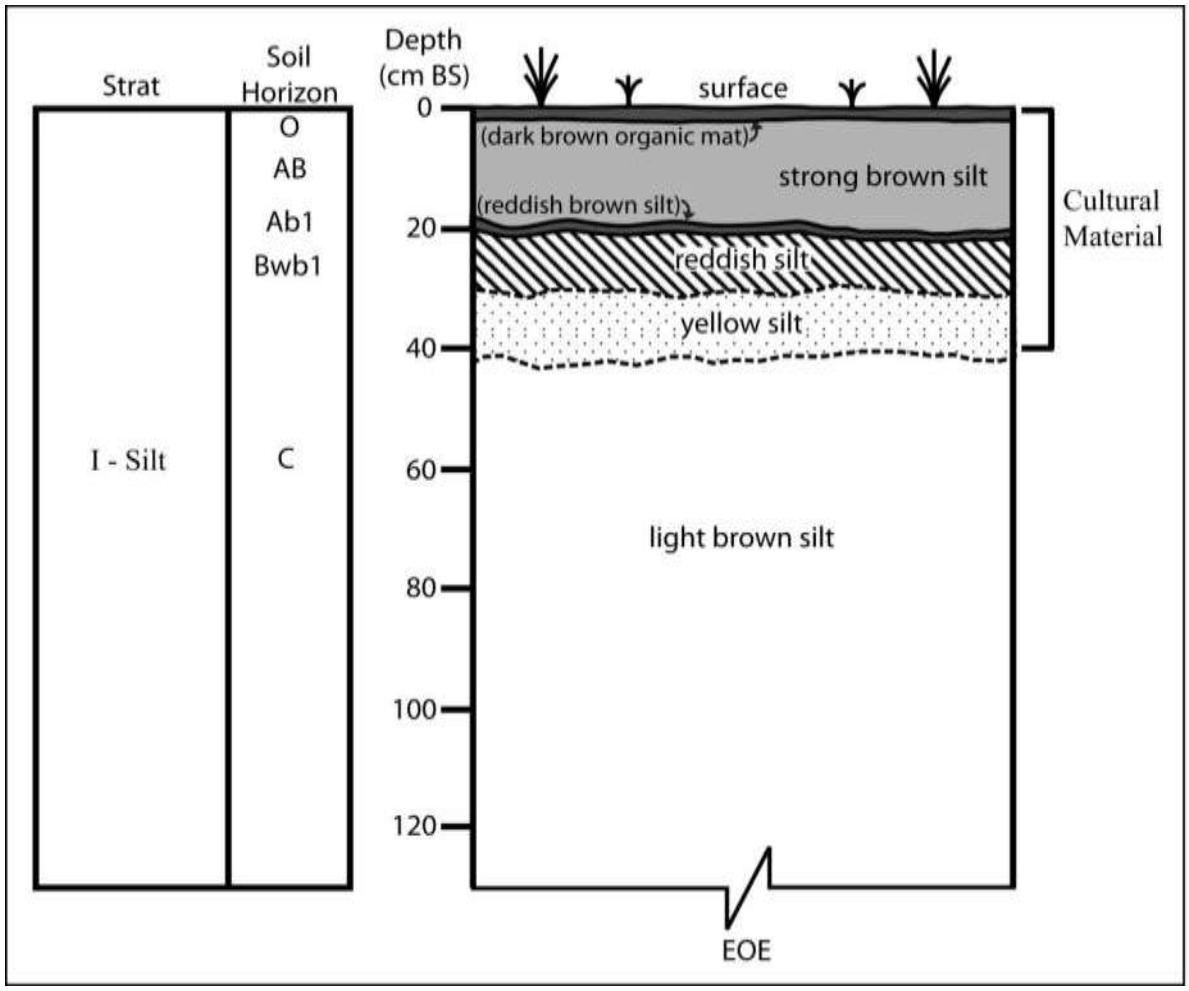

Figure 212. FAI-02026 stratigraphy

FAI-02027
Determination of Eligibility: Not evaluated

Site FAI-02027 is located on a vegetated sand dune (Figure 213). Site elevation is 153 masl. The dune is circular in shape, with a very flat (0-2° slope) plateau-like top that extends roughly 175 m x 175 m, and sides that slope at 25-40° dropping roughly 6 m to the flats below. The site is located on the western portion of the dune top. The vantage point provides a good 180° viewshed of the flats to the west. Site vegetation consists of burnt spruce and aspen stumps, with small stands of living spruce and aspen, and an understory of young aspen, grasses and forbs (Figure 214).

Site FAI-02027 was identified through subsurface testing. Cultural material was recovered from two of three test pits excavated. Two grayish brown (2.5Y 5/2) chert flake fragments were

recovered from depths of 15-30 cm BS. One of these is between 5-7.5 mm in diameter; the other is 7.5-10 mm.

Site stratigraphy consists of aeolian silts at least 70 cm thick overlying aeolian dune sands (Figure 215). Soil development consists of dark brown, charcoal-rich organic mat at 0-4 cm BS, with an underlying strong brown silt loam AB horizon at 4-8 cm BS. A reddish silt Bw horizon extends from 8-21 cm BS. The lowest 8 cm of the Bw exhibit reddish brown staining that probably represents a buried Ab horizon. Underlying this is unaltered light brown to gray silts (C horizon) extending to the end of excavation at 70 cm BS.

Figure 213. FAI-02027 aerial overview (view to southwest)

Figure 214. FAI-02027 overview (view to north)

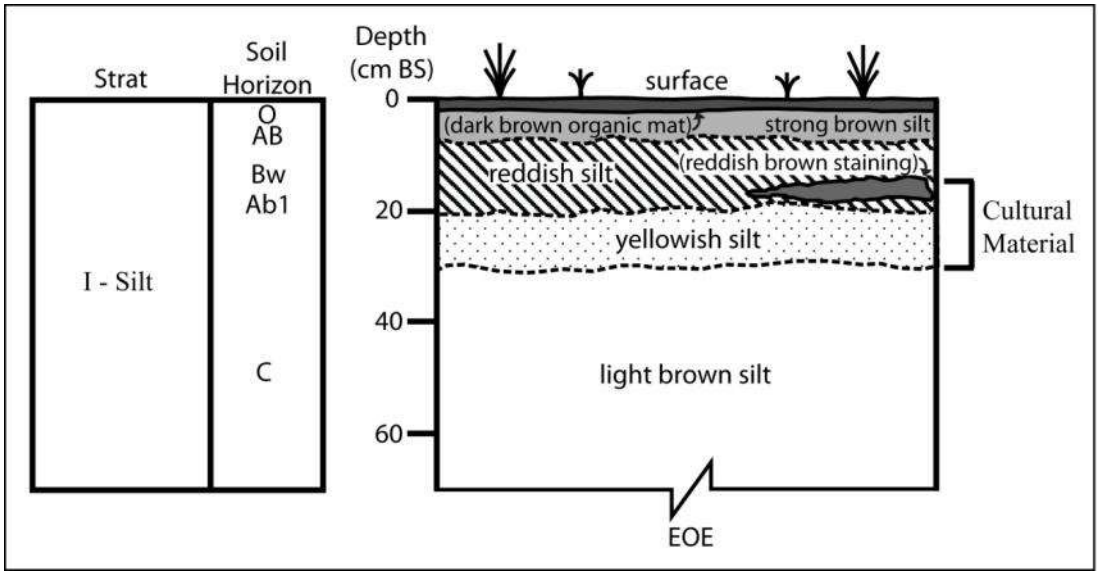

Figure 215. FAI-02027 stratigraphy

FAI-02028
Determination of Eligibility: Not evaluated

Site FAI-02028 is located on a vegetated sand dune (Figure 216). Site elevation is 135 masl. The dune is roughly 200 m on its north-south axis, and 70 m east-west. The site located on the crest of the linear portion of the dune in an area that is has a slope of 3-10°. The dune slopes at 30-40° on all sides dropping 15-20 m to the flats below. The site area has a prominent 360° view, with views of the Wood River Buttes and Alaska Range to the south, Clear Creek Butte to the east, and the Fairbanks hills to the north. The ecosystem is characterized as a broadleaf-needleleaf forest. Vegetation consists of burnt aspen and spruce stumps, with an understory of grasses and forbs (Figure 217).

Site FAI-02028 was found through subsurface testing. Cultural material was recovered from one of three test pits excavated. One broken flake made of gray (2.5Y 5/1) chert was found directly beneath the root mat at a depth of 0-5 cm BS; two light gray (2.5Y 7/2) to light brownish gray (2.5Y 6/2) flake fragments were recovered from depths of 30-60 cm BS. All of the recovered debitage was between 10 to 20 mm in diameter.

Site stratigraphy consists of aeolian silts at least 130 cm thick overlying aeolian dune sands (Figure 218). Soil development consists of dark brown, charcoal-rich organic mat at 0-4 cm BS, with an underlying strong brown silt AB horizon at 4-29 cm BS. Dark reddish brown silt extends from 29-31 cm BS; this has characteristics of an Ab horizon, but also exhibits looping tendrils, sharp edges and clay and iron-rich laminations. Underlying this is a reddish silt Bwb horizon from 31-44 cm BS. Unaltered yellow and light brown silt (C horizon) extends from 44 cm BS to the end of excavation at 130 cm BS.

Figure 216. FAI-02028 aerial overview (view to northwest)

Figure 217. FAI-02028 overview (view to west)

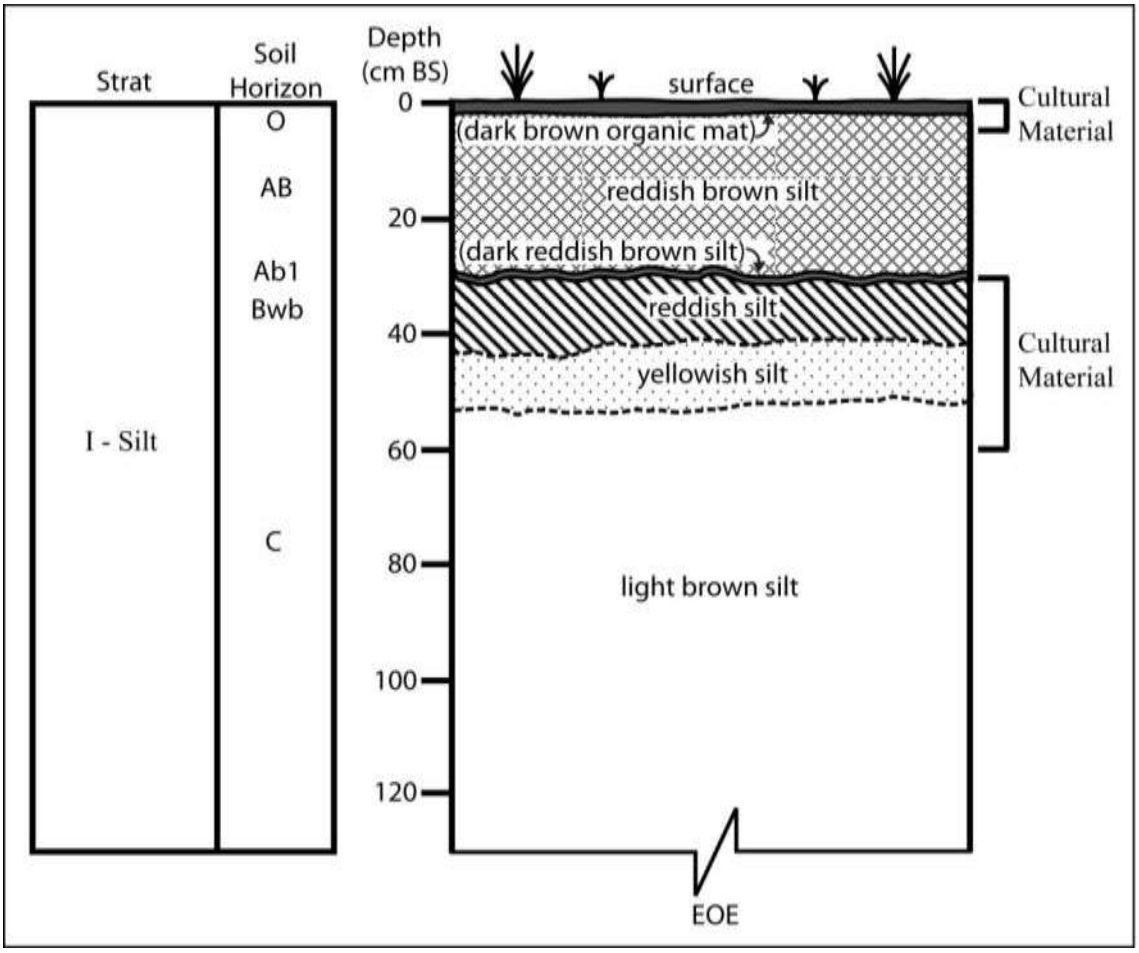

Figure 218. FAI-02028 stratigraphy

FAI-2029
Determination of Eligibility: Not evaluated

Site FAI-02029 is located on the crest of a vegetated sand dune (Figure 219). Site elevation is 140 masl. The dune extends roughly 140 m x 90 m. The site is located on the crest of the dune in an area that is has a slope of 2-10°. The dune slopes at 20-30° on all sides dropping 14-18 m to the flats below. The site area has a prominent 360° view, with views of the Wood River Buttes and Alaska Range to the south, Clear Creek Butte to the east, and the Fairbanks hills to the north. Vegetation consists of burnt aspen and spruce stumps and thick deadfall (Figure 220), with a small stand of living spruce on the northern area of the site.

Site FAI-02029 was found through subsurface testing. Cultural material was recovered from one of three test pits excavated. Thirteen artifacts including ten pieces of lithic debitage (Table 29) and three fragmentary microblades (Table 30; Figure 222) were found at depths of 0-25 cm BS. Two of the flakes are made of obsidian that has been sourced via XRF elemental analysis to the Batza Tena source on the Koyukuk River more than 400 km to the north (Appendix 1).

Site stratigraphy consists of aeolian silts at least 120 cm thick overlying aeolian dune sands (Figure 222). Soil development consists of dark brown, charcoal-rich organic mat at 0-5 cm BS, with an underlying strong brown silt AB horizon at 5-15 cm BS. A dark reddish brown silt Ab horizon extends from 15-18 cm BS, underneath which is a yellowish silt Bwb horizon from 18-30 cm BS. The basal unit is unaltered light brown silt (C horizon) from 30 cm BS to the end of excavation at 110 cm BS.

Figure 219. FAI-02029 aerial overview (view to northeast)

Figure 220. FAI-02029 overview (view to north)

Table 29. FAI-02029 lithic debitage

Test Pit	Depth (cm BS)	Debitage Type	Size Class	Material Type	Color	Munsell Code
144	0-10	complete flake	10-20 mm	basalt	black	2.5Y 2.5/1
144	10-20	flake fragment	10-20 mm	rhyolite	light brownish gray	10YR 6/2
144	0-20	broken flake	7.5-10 mm	basalt	very dark gray	2.5Y 3/1
144	0-20	flake fragment	7.5-10 mm	basalt	very dark gray	3/N
144	0-25	flake fragment	10-20 mm	rhyolite	very pale brown	10YR 7/3
144	0-25	broken flake	7.5-10 mm	rhyolite	gray	10YR 5/1
144	10-20	flake fragment	20-30 mm	rhyolite	light yellowish brown	10YR 6/4
144	10-20	broken flake	10-20 mm	rhyolite	light brownish gray	10YR 6/2
146	0-5	flake fragment	7.5-10 mm	obsidian	clear	clear
146	12-24	flake fragment	10-20 mm	obsidian	clear	clear

Table 30. FAI-02029 microblades

Test Pit	Depth (cm BS)	Material Type	L (mm)	W (mm)	T (mm)	# of Arrises	Segment	RT	Color	Munsell Code
144 (a)	10-20	rhyolite	15.5	8.5	2.1	2	medial	N	gray	10YR 5/1
144 (b)	20-25	rhyolite	13.5	5.7	2.5	1	prox.	N	pale brown	10YR 6/3
144 (c)	0-25	rhyolite	17.9	8.5	2.7	2	medial	N	gray	10YR 5/1

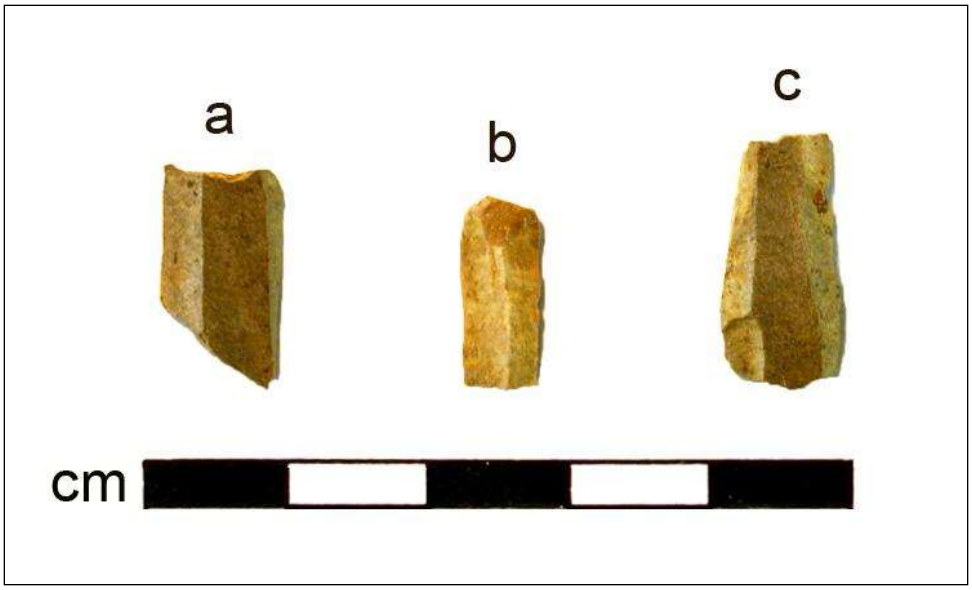

Figure 221. FAI-02029 microblades

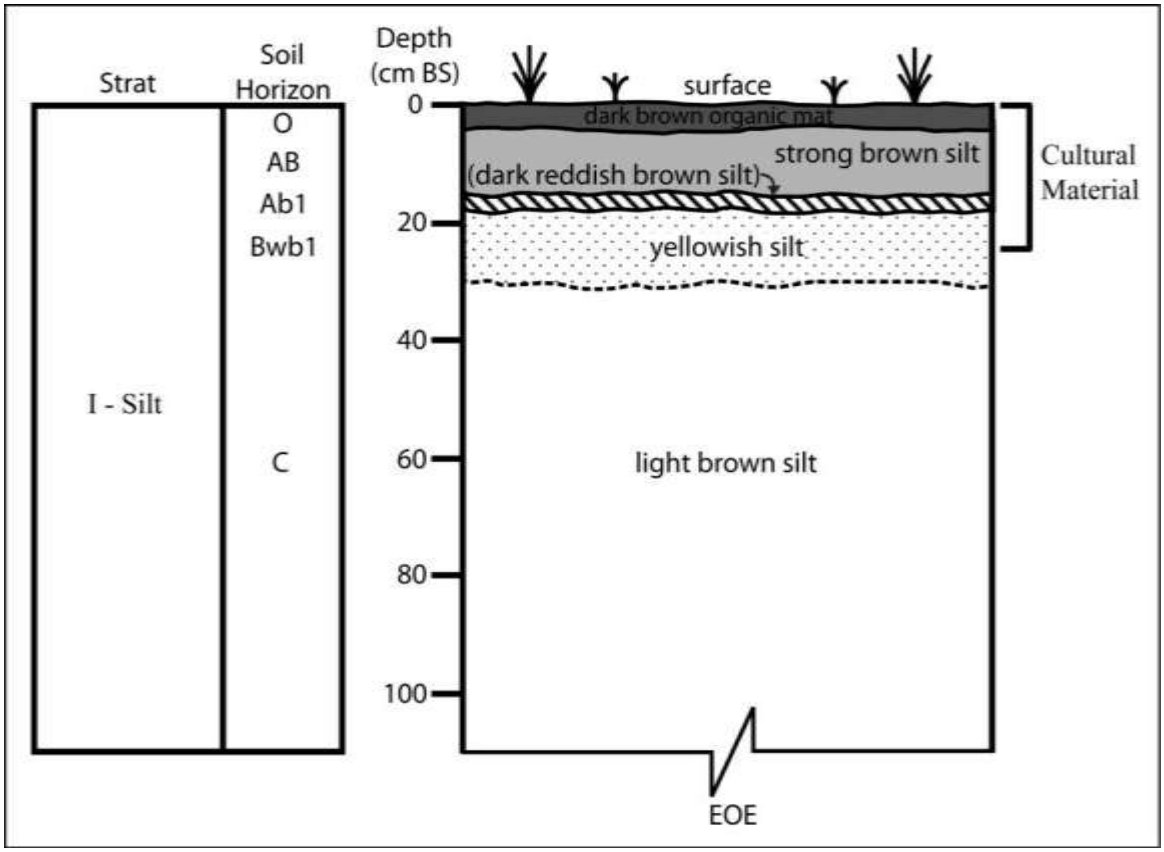

Figure 222. FAI-02029 stratigraphy

FAI-02030
Determination of Eligibility: Not evaluated

Site FAI-02030 is located on the southern lobe of a vegetated sand dune (Figure 223). Site elevation is 148 masl. The dune is roughly 250 m x 100 m. The site is located on high flat (2-10° slope) on the southern edge of the dune that is roughly 16 m above the flats below. On its east and west sides, the dune slopes at 30-40°, on its south side it slopes at a 20°. The site area has a good 180° view, with open views of the Wood River Buttes, Alaska Range and flats to the south. The site is covered with thick burnt aspen and spruce deadfall, with only a few scattered stumps still standing (Figure 224). The understory is comprised of young aspen, grasses and forbs.

Site FAI-02030 was found through subsurface testing. Cultural material was recovered from two of six test pits excavated. Seven flakes were found at depths of 5-40 cm BS; one flake was found in situ directly beneath the root mat at a depth of five cm BS. All of the recovered artifacts are lithic debitage (Table 31).

Site stratigraphy consists of aeolian silts at least 100 cm thick overlying aeolian dune sands (Figure 225). Soil development consists of dark brown, charcoal-rich organic mat at 0-6 cm BS, with an underlying strong brown silt AB horizon at 6-14 cm BS. A dark reddish brown silt Bw horizon extends from 14-32 cm BS. The Bw horizon is punctuated by a dark reddish brown clay and iron rich lamella, roughly 1-2 cm thick at depths of 21-23 cm BS. This lamella is in a similar stratigraphic position as the Ab1 horizon seen at other sites in the dune complex, presenting the possibility that it represents a buried surface. The silt beneath the lamella is much more compact than the overlying strata. The underlying strata consists of yellowish silt from 23-40 cm BS, which is underlain by unaltered light brown and grayish silt (C horizon) from 40 cm BS to the end of excavation at 100 cm BS.

Figure 223. FAI-02030 aerial overview (view to north)

Figure 224. FAI-02030 overview (view to north)

Table 31. FAI-02030 lithic debitage

Test Pit	Depth (cm BS)	Debitage Type	Size Class	Material Type	Color	Munsell Code
147	15-30	flake fragment	10-20 mm	rhyolite	pale brown	10YR 6/3
147	15-30	flake fragment	10-20 mm	rhyolite	pale brown	10YR 6/3
147	15-30	flake fragment	10-20 mm	rhyolite	yellowish brown	10YR 5/4
147	30-40	complete flake	10-20 mm	chert	dark gray	10YR 4/1
147	30-40	flake fragment	10-20 mm	rhyolite	light gray	10YR 7/2
147	30-40	complete flake	10-20 mm	chert	dark gray	10YR 4/1
151	5	flake fragment	30-40 mm	rhyolite	light gray	10YR 7/2
151	10-25	broken flake	20-30 mm	basalt	grayish brown	2.5Y 5/2

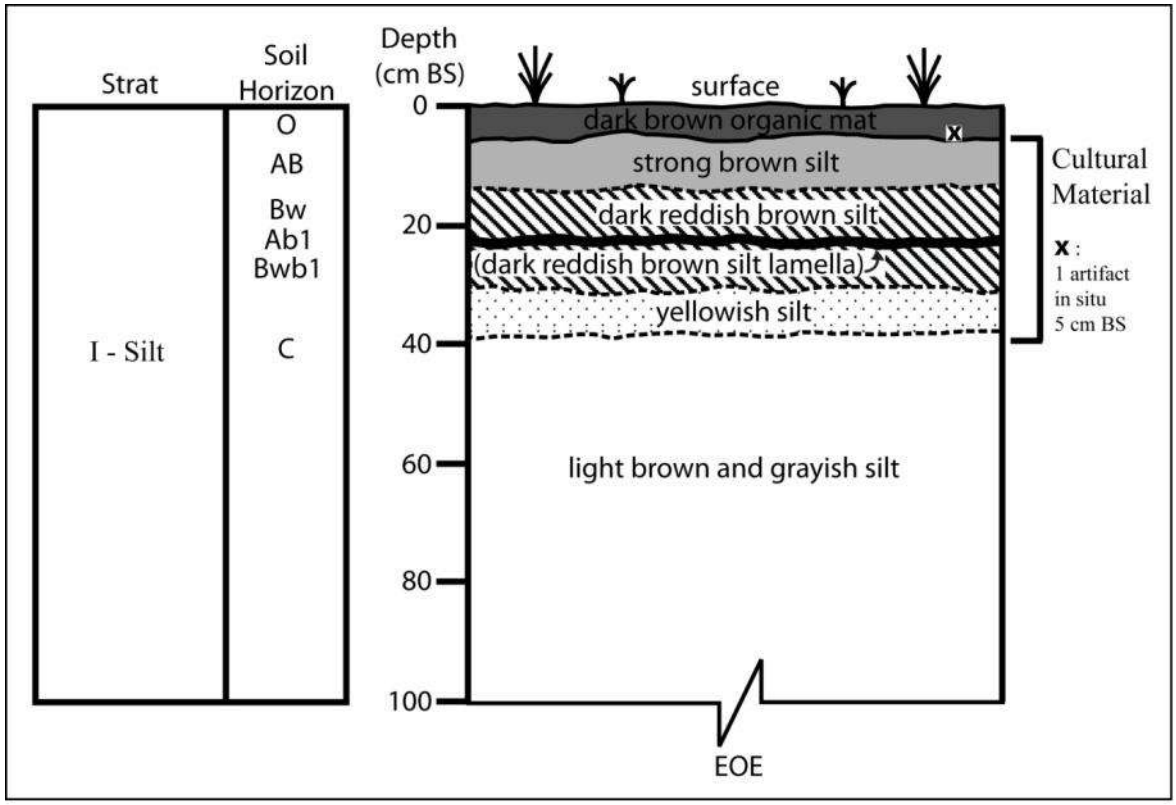

Figure 225. FAI-02030 stratigraphy

FAI-02031
Determination of Eligibility: Not evaluated

Site FAI-02031 is located on the western portion of a low, linear vegetated sand dune (Figure 226). Site elevation is 141 masl. The dune is roughly 75 m east-west, and 30 m north-south in size. The test pit yielding cultural material is situated around 20 m from the western edge of the dune and 3 m from the northern edge in a flat spot that has a slope of roughly 0-3°. The dune slopes steeply (60-70°) on all sides dropping 4-6 m to the flats below. The site area has a good 180° view, with open views of the Wood River Buttes, Alaska Range and flats to the south. The site is covered with thick burnt aspen and spruce deadfall, with only a few scattered stumps still standing (Figure 227). The understory is comprised of mosses, grasses, sedges and forbs.

Site FAI-02031 was found through subsurface testing. Cultural material was recovered from one of two test pits excavated. One dark gray (5Y 4/1) basalt flake fragment, 20-30 mm in diameter was recovered from at depths of 10-20 cm BS. Two small flakes, both of dark gray (2.5Y 3/1 to 5Y 4/1) basalt were recovered from depths of 20-30 cm BS. One of these is a flake fragment, 5-7.5 mm in diameter; the other is a piece of debris 2.5-5 mm in diameter.

Site stratigraphy consists of aeolian silts at least 70 cm thick overlying aeolian dune sands (Figure 228). Soil development consists of dark brown, charcoal-rich organic mat at 0-5 cm BS, with an underlying dark brown silt AB horizon at 5-17 cm BS. A dark reddish brown silt Bw horizon extends from 17-30 cm BS. Unaltered (C horizon) light yellowish gray very fine sandy silt extends from 30 cm BS to the end of excavation at 70 cm BS.

Figure 226. FAI-02031 aerial overview (view to northeast)

Figure 227. FAI-02031 overview (view to north)

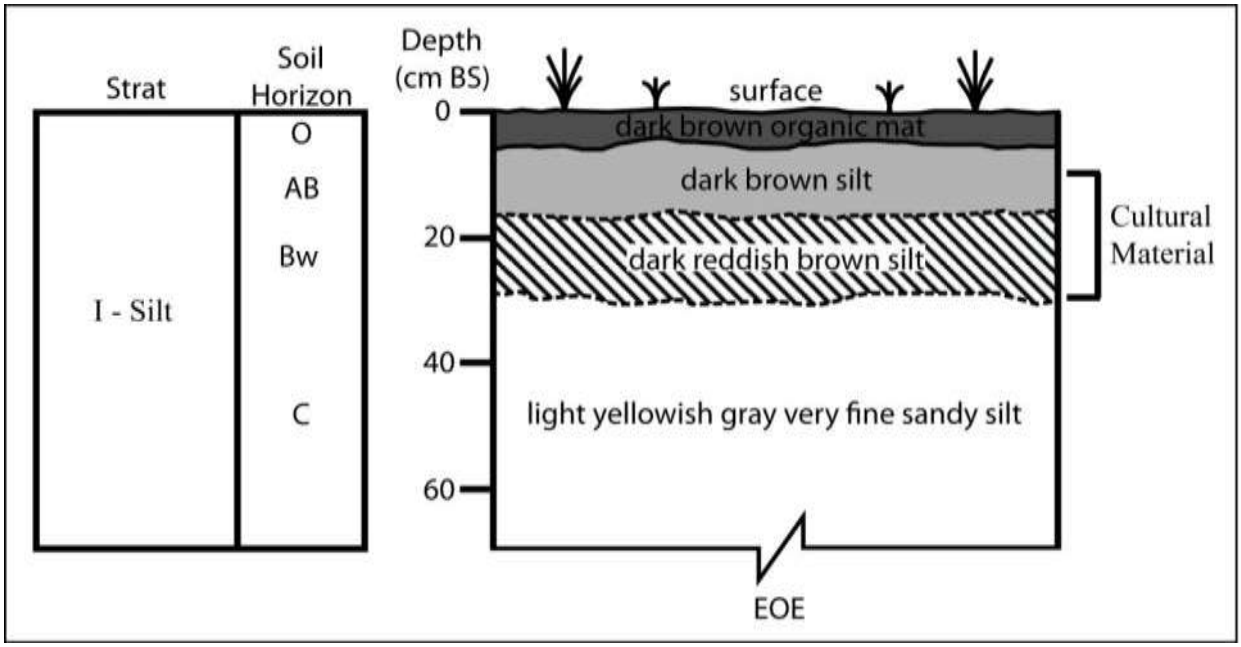

Figure 228. FAI-02031 stratigraphy

FAI-02032
Determination of Eligibility: Not evaluated

Site FAI-02032 is located on the northern portion (Figure 229) of an extensive vegetated compound dune complex. Site elevation is 173 masl. The dune complex extends for roughly 525 m east-west and 225 m north to south, while the site-containing lobe is roughly 140 m east-west, and 60 m north-south in size. Site slope is 3-10°; the northern edge of the landform drops at a 50-60° slope roughly 20 m to the flats below. The site area has a good 180° view, with open views of the flats and Fairbanks hills to the north. Site vegetation consists of mixed needleleaf/hardwood forest with white spruce and aspen and an understory of moss on and low-bush cranberries (Figure 230).

Site FAI-02032 was found through subsurface testing. Cultural material was recovered from three of three test pits excavated. Forty-five pieces of lithic debitage (

Table **32)** and one burin spall (Figure 231) were found at depths of 1-67 cm BS. The burin spall is made of light brown (7.5Y 6/4) rhyolite. It measures 16.1 mm long, 4.8 mm maximum width, and 1.6 mm maximum thickness. It displays two arises, and has no indication of retouch or edge damage.

Site stratigraphy consists of aeolian silts at least 50 cm thick overlying aeolian dune sands (Figure 232). Soil development consists of dark brown, charcoal-rich organic mat at 0-4 cm BS, with an underlying dark brown silt AB horizon at 4-10 cm BS. A dark reddish brown silt Bw horizon extends from 10-19 cm BS. The lower portions of the Bw horizon have a braided, clay and iron-rich lamella that extends from 18-21 cm BS. A dark reddish brown Ab horizon is evident at 21-22 cm BS, with an underlying Bwb at 22-31 cm BS. Unaltered yellow silts (C1) extend from 31-36 cm BS, underneath which are light brown fine sandy silts (C2) from 36-50 cm BS. Yellowish brown, well-sorted medium sands with lenses of well-sorted very fine sands extend from 50-82 cm BS. The basal unit consists of gray well-sorted medium sands (2C) from 80 cm BS to the end of excavation at 130 cm BS.

Figure 229. FAI-02032 aerial overview (view to west)

Figure 230. FAI-02032 overview (view to west)

Figure 231. FAI-02032 burin spall

Table 32. FAI-02032 lithic debitage

TP	Depth (cm BS)	Debitage Type	Size Class	Material Type	Color	Munsell Code
163	0-10	broken flake	10-20 mm	chert	dark reddish gray	2.5YR 3/1
163	0-10	broken flake	7.5-10 mm	chert	dark reddish gray	2.5YR 3/1
163	0-10	flake fragment	10-20 mm	chert	dark reddish gray	2.5YR 3/1
163	0-10	broken flake	7.5-10 mm	chert	dark reddish gray	2.5YR 4/1
163	0-10	flake fragment	7.5-10 mm	chert	dark reddish gray	2.5YR 4/1
163	0-10	flake fragment	10-20 mm	chert	dark reddish gray	2.5YR 4/1
163	0-10	flake fragment	7.5-10 mm	transl. chert	clear with light gray	2.5Y 7/1
163	10-20	flake fragment	10-20 mm	chert	dark reddish gray	2.5YR 3/1
163	10-20	flake fragment	10-20 mm	chert	dark reddish gray	2.5YR 3/1
163	10-20	flake fragment	10-20 mm	chert	dark reddish gray	2.5YR 4/1
163	10-20	broken flake	5-7.5 mm	chert	dark reddish gray	2.5YR 3/1
163	10-20	broken flake	10-20 mm	rhyolite	light brown	7.5YR 6/4
163	10-20	flake fragment	7.5-10 mm	rhyolite	light gray	10YR 7/2
163	10-20	flake fragment	10-20 mm	rhyolite	light gray	10YR 7/2
163	10-20	flake fragment	10-20 mm	rhyolite	light brown	7.5YR 6/4
163	10-20	broken flake	5-7.5 mm	rhyolite	light yellowish brown	10YR 6/4
163	10-20	flake fragment	5-7.5 mm	rhyolite	very pale brown	10YR 7/4
163	10-20	broken flake	7.5-10 mm	rhyolite	light brownish gray	10YR 6/2
163	10-20	flake fragment	7.5-10 mm	rhyolite	very pale brown	10YR 7/4
163	10-20	broken flake	7.5-10 mm	chert	dark gray	4/N
163	10-20	flake fragment	7.5-10 mm	chert	dark gray	4/N
163	10-20	broken flake	10-20 mm	transl.chert	clear with dark gray	4/N
163	10-20	complete flake	7.5-10 mm	transl.chert	clear with dark gray	4/N
163	10-20	flake fragment	5-7.5 mm	transl.chert	clear with dark gray	4/N
163	10-20	broken flake	7.5-10 mm	transl.chert	clear with dark gray	4/N
163	20-30	flake fragment	5-7.5 mm	rhyolite	light yellowish brown	10YR 6/4
163	30-40	broken flake	10-20 mm	chert	dark gray	2.5Y 4/1
164	0-5	flake fragment	10-20 mm	chert	grayish brown	2.5Y 5/2
165	0-15	complete flake	10-20 mm	rhyolite	brown	10YR 4/3
165	0-15	broken flake	10-20 mm	rhyolite	light brown	7.5YR 6/3
165	0-15	broken flake	10-20 mm	rhyolite	light brownish gray	10YR 6/2
165	15-40	broken flake	30-40 mm	rhyolite	pale brown	10YR 6/3
165	15-40	broken flake	7.5-10 mm	rhyolite	light yellowish brown	10YR 6/4
165	15-40	flake fragment	10-20 mm	rhyolite	brown	10YR 5/3

TP	Depth (cm BS)	Debitage Type	Size Class	Material Type	Color	Munsell Code
165	15-40	flake fragment	10-20 mm	rhyolite	light brown	7.5YR 6/3
165	15-40	broken flake	7.5-10 mm	rhyolite	pale brown	10YR 6/3
165	15-40	complete flake	10-20 mm	chert	very dark gray	3/N
165	15-40	flake fragment	20-30 mm	chert	grayish brown	2.5Y 5/1
165	40-60	flake fragment	10-20 mm	rhyolite	light yellowish brown	10YR 6/4
165	40-60	flake fragment	30-40 mm	chert	gray	5Y 6/1
165	40-60	flake fragment	10-20 mm	chert	gray	5Y 6/1
165	40-60	flake fragment	7.5-10 mm	chert	very dark gray	3/N
165	60-80	flake fragment	10-20 mm	rhyolite	light yellowish brown	10YR 6/4
165	65-67	flake fragment	>40 mm	chert	gray	5Y 5/1
165	unk.	broken flake	10-20 mm	chert	gray	5Y 5/1

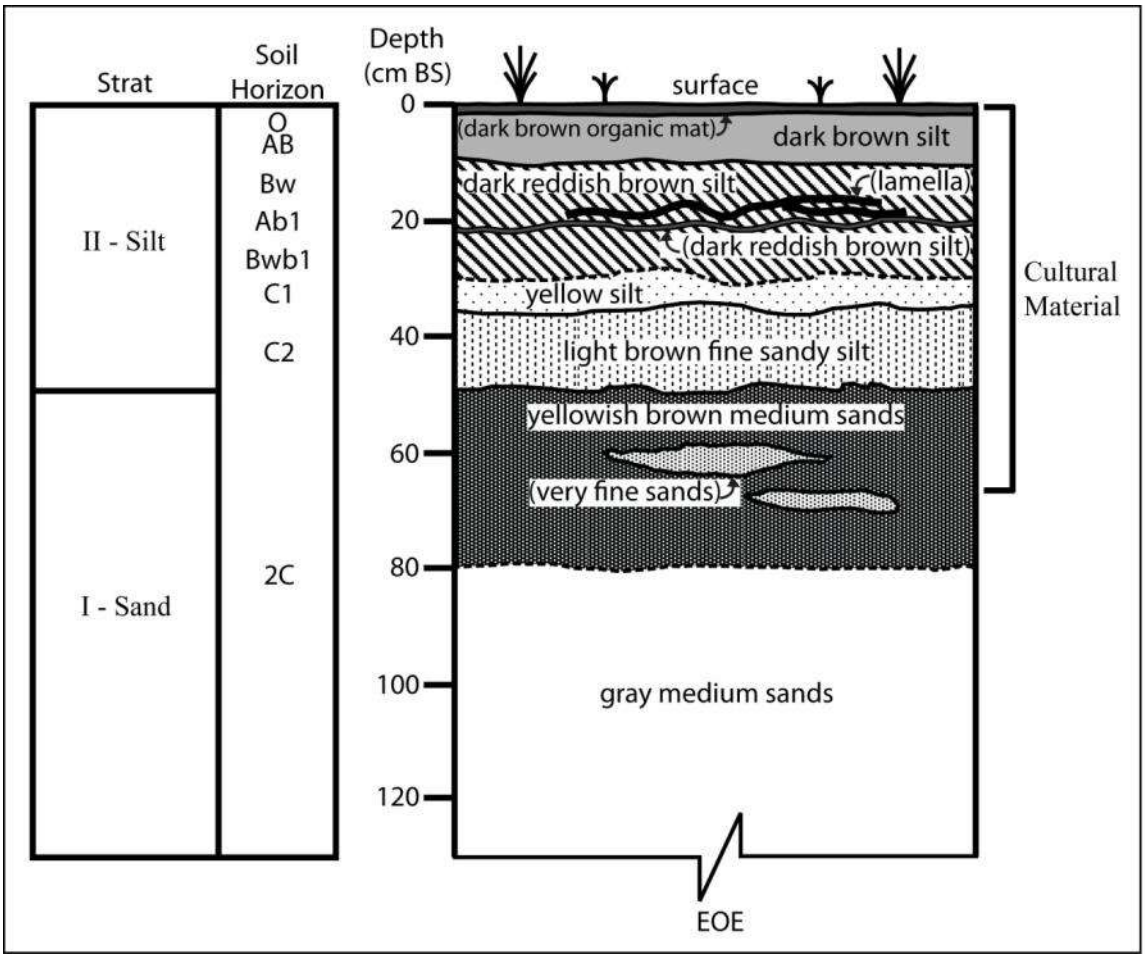

Figure 232. FAI-02032 stratigraphy

FAI-02033
Determination of Eligibility: Not evaluated

Site FAI-02033 is located on a low circular dune (Figure 233) on the southeastern edge of an extensive vegetated compound dune complex. Site elevation is 150 masl. The dune complex extends for roughly 525 m east-west and 225 m north to south, while the site-containing dune has a diameter of roughly 50 m. The site is located on the crest of the dune in a flat area that has a slope of 2-7°. The slopes of the dune drop at roughly 20°, falling round 6-8 m to the flats below. The site area has a good 180° view, with open views of the flats to the east. Site vegetation consists of mixed needleleaf/hardwood forest with white spruce and aspen and an understory of moss on and low-bush cranberries (Figure 234).

Site FAI-02033 was found through subsurface testing. Unequivocal cultural material was recovered from two of six test pits excavated. One very dark gray (3/N) broken chert flake, between 7.5-10 mm in diameter, was found at depths of 20-60 cm BS from one test pit; while a separate test pit yielded a dark gray (5Y 4/1) basalt flake fragment, 10-20 mm in diameter, from depths of 20-30 cm BS. Two additional test pits yielded faunal remains from depths of 5-20 cm BS; however, these were not associated with lithic artifacts, nor did they display and evidence of burning. It remains uncertain if the bones are of a cultural origin.

AMS radiocarbon dating of stratigraphic charcoal found in association (Figure 235) with the artifacts yielded an uncalibrated date of 3960 ± 40 BP (Beta-271219).

Site stratigraphy consists of aeolian silts at least 60 cm thick overlying aeolian dune sands (Figure 235). Soil development consists of dark brown, charcoal-rich organic mat at 0-8 cm BS, with an underlying dark brown silt AB horizon at 8-18 cm BS. A dark reddish brown silt Bw horizon extends from 18-30 cm BS. The lower portions of the Bw horizon have a braided, clay and iron-rich lamella that extends from 24-31 cm BS. A dark reddish brown Ab horizon is evident at 31-34 cm BS, with an underlying Bwb at 34-41 cm BS. Unaltered yellow silts (C1 horizon) extend from 41-49 cm BS. Underlying this is poorly expressed reddish staining indicative of a Bwb2 horizon from 49-52 cm BS. Unaltered light brown silt (C2 horizon) extends from 52-60 cm BS, which is in turn underlain by light brown fine sandy silt from 60-68 cm BS. The basal unit (2C horizon) is a sand layer that extends from 60 cm BS to the end of excavation at 125 cm BS, and is characterized as gray very well-sorted medium sands with lenses of very well-sorted, very fine sands.

Figure 233. FAI-02033 aerial overview (view to northwest)

Figure 234. FAI-02033 overview (view to south)

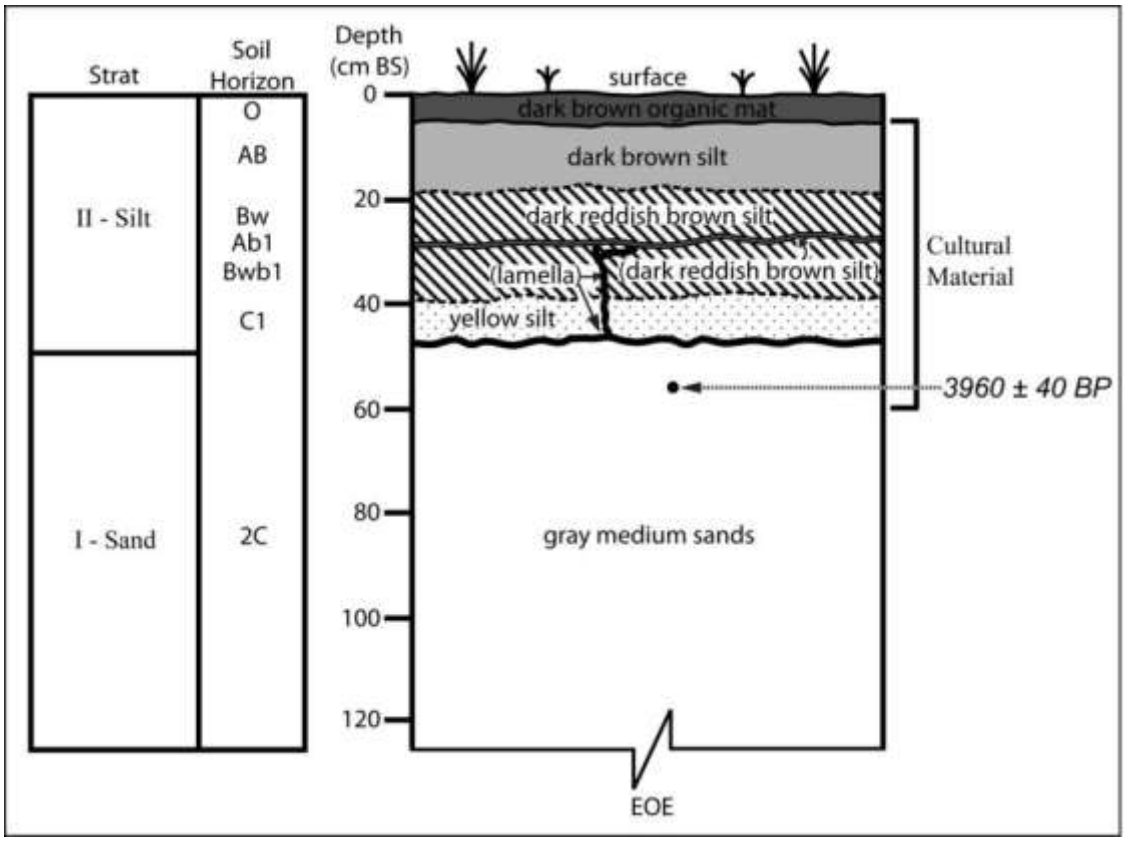

Figure 235. FAI-02033 stratigraphy

Discussion

The 2009 field effort was an initial reconnaissance, guided by an arbitrary strategy designed to obtain a sample of sites across the dune field. Accordingly, the results presented here represent a very limited body of evidence related to the prehistoric occupation of the dunes. Despite its limited nature, the data recovered allows several inferences in terms of prehistoric human behavior, timing of occupation and geologic context of archaeological sites in the dune field.

All of the sites were found in intact, undisturbed buried contexts. Stratigraphy at sites across the dune field is generally uniform and consists of aeolian silts, ranging from 30 to 350 cm thick, overlying aeolian sands. Soil development is characterized by modern OAB horizons to depths of 20 cm. Nearly all (n=22; 88%) of the sites except for three—FAI-02004, FAI-02024, and FAI-02031—exhibit evidence of a buried surface within the upper silt layer. At fourteen sites this comes in the form of an Ab horizon generally found near the base of the modern Bw horizon at depths of 10-30 cm BS. At eight of the sites clay and iron rich lamellae occupy this stratigraphic position. While the genesis of such lamellae in the Tanana Valley is poorly understood (Dilley 1998), recent studies indicate that these represent a buried surface (Johnson and Bozarth 2008) with differential compaction that impedes post-depositional clay and iron translocation. As the clay and iron accumulate on the buried surfaces they then form braided

lamellae. Sands encountered as the basal unit at all of the sites are massively bedded, with no observable evidence of soil formation.

At all of the sites across the dune field, artifacts were found within the upper silt layer. Twenty of the sites yielded artifacts in association with the buried surface described above. Late Holocene ages for these components are estimated based on their stratigraphic position. One radiocarbon date at site XMH-02033 from stratigraphic charcoal found directly below the lamella produced results of 3960 ± 40 BP. Two of the sites—FAI-02010 and FAI-02011—yielded remains from the surface to 5 cm BS, indicating a late prehistoric age. Three sites also produced remains from the basal sand layers. If models for the age and timing of sand deposition and dune formation in the Tanana Valley (e.g. Dilley 1998, Potter et al. 2008) and adjacent Nenana Valley (e.g. Bigelow et al. 1990) hold true for the dunes here, then these components might date to the late Pleistocene or early Holocene.

In terms of technology, the overwhelming majority of lithic flakes (n=452; 87.77%) are small (7.5-20 mm) tertiary pressure flakes (Table 33), indicating that tool maintenance and repair were the major prehistoric flintknapping activities. Microblades were found at four (16%) of the sites—FAI-02007, FAI-02020, FAI-02026, FAI-02029. All of these were either proximal fragments (n=4; 50%) or medial fragments (n=5; 50%) (Table 34). No complete microblades, distal fragments, or cores were found. Bifacial reduction strategies are present in the form of one biface fragment found at FAI-02022, and a fragmentary projectile point from FAI- 02026. Chert (n=231; 43.92%) and rhyolite (n=204; 38.78%) are the predominate raw materials present in the entire sand dune assemblage (Table 35). Other materials present include basalt (n=83; 15.78%), quartz (n=5, .95%), and obsidian (n=3; .57%). All of the obsidian has been sourced to the Batza Tena source on the Koyukuk River more than 400 miles to the north (Appendix 1).

Table 33. Sand dune assemblage flake size classes

size	count	%
0-2.5 mm	1	0.19%
2.5-5 mm	2	0.39%
5-7.5 mm	32	6.21%
7.5-10 mm	177	34.37%
10-20 mm	275	53.40%
20-30 mm	20	3.88%
30-40 mm	7	1.36%
> 40 mm	1	0.19%
total	515	100.00%

Table 34. Sand dune assemblage microblade segments

segment	count	%
proximal	4	50.00%
medial	4	50.00%
distal	0	0.00%
complete	0	0.00%
total	8	100.00%

Table 35. Sand dune assemblage raw materials

material type	count	%
chert	231	43.92%
rhyolite	204	38.78%
basalt	83	15.78%
quartz	5	0.95%
obsidian	3	0.57%
total	526	100.00%

Summary

A total of 25 prehistoric archaeological sites were identified in the vegetated dune field in the northwestern portion of the TFTA. All of these are intact buried sites, with demonstrated integrity, and undisturbed stratigraphy. All of these can yield data for addressing a number of important regional questions, and can provide significant information pertaining to the prehistory of interior Alaska. They are all potentially eligible for inclusion in the NRHP. Sites from dune contexts are relatively rare in the interior of Alaska, underscoring the significance of the sites reported here. If development is planned that will include any portion of the dune field, application of 36CFR800.5 indicates a finding of "historic properties affects." These sites will be avoided through design modification whenever possible. If avoidance is not feasible, consultation with the SHPO and interested Tribal governments will ensue to identify appropriate mitigation measures, prior to the advent of any future construction.

It should be noted that the field efforts conducted during 2009 represent initial reconnaissance and a judgmental sample survey of the area. The overwhelming majority of the vegetated dune field and northwestern portion of the TFTA remains un-surveyed. The recent efforts should not be construed as representing a systematic effort sufficient to meet Section 106 NHPA considerations, or satisfy historic property identification efforts stipulated in 36CFR800.4. In order to meet these legal requirements, full-coverage, systematic archaeological survey of project areas must be factored into future range development plans. This point is underscored by the high number of known sites in the area, and density of archaeological remains identified as part of the recent survey. The sample of sites obtained as part of these efforts demonstrates the likelihood of a large number of additional significant archaeological sites in the area.

REFERENCES

Aigner, J. and R. Lively
1986 Chugwater. *Archaeology* 39(6).

Anderson, D.
1968 *Early notched points and related assemblages in Western American Arctic*. Unpublished manuscript on file on the University of Alaska Museum.

1970a Microblade Traditions in Northwestern Alaska. In *Arctic Anthropology* 7(2): 2-16.

Andrews, E.F.
1975 *Salcha: an Athabaskan Band of the Tanana River and its Culture*. Master's Thesis, University of Alaska Fairbanks.

1977 *Report on the Cultural Resources of the Doyon Region, Central Alaska: Volumes I and II*. Occasional Paper No. 5. Anthropology and Historic Preservation, Cooperative Park Studies Unit, University of Alaska, Fairbanks.

1987 Archaeological Evidence of European Contact: the Han Athabaskans near Eagle, Alaska. In *High Plains Applied Anthropology* 7(2): 51-64.

Bacon, G. H.
1978 *Final Report on the Archaeological Survey of the XM-1 Tank Range, Fort Greely, Alaska*. Final Report. Prepared for the US Army Corps of Engineers. Alaska District, NPASU-78-78-41. Prepared by Alaskarctic, Fairbanks.

Bacon, G.H. and C.E. Holmes
1979 *Archaeological Survey and Inventory of Cultural Resources at Fort Greely, Alaska,* 1979. Final Report. Prepared for the U.S. Army Corps of Engineers, Alaska District.

Bacon, G.H., J.A. Ketz, C.M. Mobley
1986 Historic Preservation Plans for U.S. Army Lands in Alaska. Fairbanks, Alaska: Alaska Heritage Research Group.

Bigelow, N., Begét, and R. Powers
1990 Latest Pleistocene Increase in Wind Intensity Recorded in Eolian Sediments from Central Alaska. *Quaternary Research* 34: 160-168

Bowers. P.M., O.K. Mason, S.L. Ludwig, A.S. Higgs, and C.W. Smythe
1995 *Cultural Resources Inventory of the Proposed Healy to Fairbanks Northern Intertie, South Route and Tanana Flats Alternatives*. Final Report. Prepared for Golden Valley Electric Association.

Center for the Environmental Management of Military Lands (CEMML)
2002 *Integrated Natural Resource Management Plan 2002-2006, Fort Wainwright,* United States Army Alaska, CEMML, Colorado State University, Fort Collins, CO.

Clark, D.W.
1992 The Archaic in the Extreme Northwest of North America. *Revista de Arqueología Americana* 5: 71-99.

Collin, F.R.
1985 A Map Showing a Vegetated Dune Field in Central Alaska. *U.S. Geological Survey Miscellaneous Field Studies Map MF-1708.*

Cook, J. P.
1979 *Site XBD-094; Aircraft Assault Strip, Fort Wainwright, Alaska.* Prepared for the U.S. Army Corps of Engineers. On file at the State Historic Preservation Office, Anchorage.

1989 Historic Archaeology and Ethnohistory at Healy Lake, Alaska. In *Arctic* 42(3): 109-118.

Cook, J. P. and T. E. Gillispie
1986 *Notched Points and Microblades.* Paper presented at the 13th Annual Meeting of the Alaskan Anthropological Association, Fairbanks, Alaska.

Cook, J. P. and R. A. McKennan
1971 *The Athabaskan Tradition: A View from Healy Lake*. Paper presented to Athabaskan Conference, Museum of Man, Ottawa, March 1971.

Department of the Interior, National Park Service, National Register, History and Education
2000 *National Register Bulletin, Guidelines for Evaluating and Registering Archaeological Properties.* Barbara Little, Erika Martin Seibert, Jan Townsend, John H. Sprinkle, Jr., and John Knoerl (eds.)

Dixon, E.J., G.S. Smith, and D. Plaskett
1980 *Archaeological Survey and Inventory of Cultural Resources, Fort Wainwright, Alaska.* Prepared for U.S. Army Corps of Engineers, Alaska District.

1985 Cultural Chronology of Central Interior Alaska. *Arctic Anthropology* 22: 47-66.

Dixon, J., G. Smith, W. Andrefsky, B. Saleeby and C. Utermohle
1985 Draft Report: Susitna Hydroelectric Project, Cultural Resources Investigations 1979-1985, Volume I Chapters 1-10, Appendix A. UA Museum for Alaska Power Authority.

Dixon, J. G.
1980 The Moose River Site, 1978 (with a special Appendix by John E. Lobdell). In Archaeological Survey Projects, 1978, T.L. Dilliplane (ed.), Pp. 32-48. *Miscellaneous Publications, History and Archaeology Series, No. 22.* Alaska Division of Parks, Department of Natural Resources, Anchorage.

Dumond, D.E.
1977 *The Eskimos and Aleuts*. London: Thames and Hudson.

Erlandson, J.R., M.H. Walser, N. Bigelow, J. Cook, R. Lively, C. Adkins, D. Dodson, A. Higgs, and J. Wilber
1991 Two Early Sites of Eastern Beringia. *Radiocarbon* 33 (1):35-50.

Esdale, J.
2007 *A History of Northern Archaic Research and a Summary of Current Problems.* Paper presented at the 34th Annual Meeting of the Alaskan Anthropological Association, Fairbanks, Alaska.

Frizzera, A.
1973 *Preliminary Survey Report, Blair Lakes Alaska*. Fairbanks, Alaska: University of Alaska, Fairbanks, Anthropology Department.

Gabriel, H.W., and G.F. Tande
1983 *A Regional Approach to Fire History in Alaska.* U.S. Department of the Interior, Bureau of Land Management Technical Report 9, BLM/AK/TR-83/09.

Gamza, T.
1995 *Excavation and Evaluation of Sullivan's Roadhouse (XBD-061), Fort Greely, Alaska 1994*. Final Report. Prepared for the Office of History and Archaeology, Division of Parks and Recreation, Alaska Department of Natural Resources, Anchorage.

Goodman, E.A., B.A. Potter, P.M. Bowers, K.W.M. Farmen
2002 *Cultural Resources Survey of a Proposed Powerline at Fort Greely, Alaska*. Prepared for Golden Valley Electric Association, Fairbanks, AK.

Griset, Suzanne and Marc Kodack
1999 Guidelines for the Field Collection of Archaeological Materials and Standard Operating Procedures for Curating Department of Defense Archaeological Collections. Department of Defense.

2003 Hedman, W., A. Robertson, N. Fichter and K. Anderson
Archaeological Survey and Evaluation, Fort Richardson and Fort Wainwright, 2002. Center for Environmental Management of Military Lands (CEMML), Colorado State University, Ft. Collins, CO and U.S. Army Alaska, Fort Richardson, AK.

Hoffecker, J. F.
1996 Introduction to the Archaeology of Beringia. In *American Beginnings: The Prehistory and Paleoecology of Beringia.* Frederick Hadleigh West, ed., pp. 149-153. University of Chicago Press

Hoffecker, J.F., W.R. Powers, and T. Goebel
1993 The Colonization of Beringia and the Peopling of the New World. In *Science* 259:46-52.

Higgs, A.S., B.A. Potter, P.M. Bowers, and O.K. Mason
1999 *Cultural Resource Survey Report of the Yukon Training Area and Fort Greely Army Lands Withdrawal, Alaska. Draft Report*. Prepared for CRREL and ABR Inc., Fairbanks.

Holmes, C.E.
1978 *Obsidian Hydration Studies: A Preliminary Report of Results. Central Alaska*. Paper presented at Alaskan Archaeology Symposium, 31st Annual Northwest Anthropological Conference, Pullman, Washington.

1979 *Archeological Reconnaissance Report for Fort Wainwright, Fort Greely, and Fort Richardson Withdrawal Lands, Alaska.* Report Prepared for the 172nd Infantry Brigade.

1996 Broken Mammoth Site. In *American Beginnings: The Prehistory and Paleoecology of Beringia.* Frederick Hadleigh West, ed. University of Chicago Press.

1998 New Data Pertaining to Swan Point, the Oldest Microblade Site Known in Alaska, *Current Research in the Pleistocene* (15) 21-22.

2001 Tanana River Valley Archaeology circa 14,000 to 9000 B.P. *Arctic Anthropology* 38(2):154-170.

2000 "Classification of Early Alaskan Archaeological Assemblages: the Search for Useful Criteria." Paper presented at Canadian Archaeological Association 33rd Annual Conference, Ottawa.

2002 *Summary Report: Determination of National Register Eligibility for Three Archaeological Sites at Fort Greely, Alaska.* Office of History and Archaeology Report No. 89. Division of Parks and Outdoor Recreation, Alaska Department of Natural Resources.

2007 *The East Beringian Tradition and the Transitional Period: New Data from Swan Point.* Paper presented at the 34th Annual Meeting of the Alaskan Anthropological Association, Fairbanks, Alaska.

2008 *Lithic Technology of the East Beringian Tradition: Sustaining the Cutting Edge.* Paper presented at the 73rd Annual Meeting of the Society for American Archaeology, Vancouver (March 26-30

Holmes C. E. and J. Anderson
1986 *Archaeology and Paleoecology of the Delta River Area, Interior Alaska*. National Science Foundation Project Summary Manuscript on file at the State Historic Preservation Office, Anchorage.

Holmes, C. E., R. Vanderhoek, and T. E. Dilley
1996 Swan Point. In *American Beginnings: The Prehistory and Paleoecology of Beringia*. Edited by Frederick Hadleigh West. Pp. 319-323. University of Chicago Press.

Hopkins, D.M.
1982 Aspect of the Paleogeography of Beringia During the Late Pleistocene. *In Paleoecology of Beringia*. Edited by D.M. Hopkins, J.V. Matthews, Jr., C.E. SChweger, and S.B. Young. pp 3-28. Academci Press, New York.

Johnson, W.C., and S.R. Bozarth
2008 Geoarchaeology and Environmental Reconstruction at XMH-00874, Fort Wainwright, Donnelly Training Area, Alaska. Report prepared for Colorado State University CEMML by University of Kansas Department of Geography and Palynology Laboratory

Jorgensen. M.T., J.E. Roth, S.F. Schlentner, E.R. Pullman, M. Macander, and C. Racine
2003 *An Ecological Land Survey for Fort Richardson, Alaska*. Report prepared by the Cold Regions Research Laboratory for U.S. Army Alaska

Jorgensen. M.T., J.E. Roth, M.D. Smith, S.F. Schlentner, W. Lentz, E.R. Pullman, and C.Racine
1999 *An Ecological Land Survey for Fort Greely, Alaska*. Report prepared by the Cold Regions Research Laboratory for U.S. Army Alaska

Ketz, J. A.
1982 *Paxson Lake, Two Nineteenth Century Ahtna Sites in the Copper River Basin*. Master's Thesis, on file at the University of Alaska Fairbanks.

Lea, P.D., and C.F. Waythomas
1990 Late-Pleistocene Sand Sheets in Alaska. *Quaternary Research* 34: 269-281

Lively, R.
1988 *Chugwater: A Study of the Effectiveness of a Small Scale Probabilistic Sampling Design of an Interior Alaskan Site, Chugwater (FAI-035).* Manuscript on file at the U.S. Army Corps of Engineers, Alaska District, Anchorage.

Maitland, R.E.
1986 *The Chugwater Site, Moose Creek Bluff, Alaska, 1982 and 1983 Field Seasons.* Final Report. Prepared for the U.S. Army Corps of Engineers.

McFadyen, C. A.
1981 Koyukon. In: *Handbook of North American Indians, Volume 6: Subarctic,* edited by J. Helm, pp. 582-601. Smithsonian Institution, Washington, D.C.

1996 Who Lived in This House? A Study of Koyukuk River Semisubterranean Houses. *Mercury Series Archaeological Survey of Canada Paper 153*. Canadian Museum of Civilization. Hull, Quebec, Canada.

McKennan, R.A.
1959 *The Upper Tanana Indians*. Yale University Publications in Anthropology No. 55.

1969 Athabaskan Groups of Central Alaska at the Time of White Contact. In *Ethnohistory* 16 (4):335-343.

1981 Tanana. In: *Handbook of North American Indians,* Vol. 6, Subarctic. Volume Edited by June Helm. Smithsonian Institution, Washington.

McKennan, R. A. and J. P. Cook
1970 Prehistory of Healy Lake, Alaska. In *Proceedings of the 8th International Congress of Anthropological and Ethnological Sciences, vol.3*, pp. 182-184. Tokyo and Kyoto, 1968.

McNab, W.H., and P.E. Avers
1994 *Ecological Subregions of the United States: Section Descriptions.* Administrative Publicatioin WO-WAS-5, U.S. Department of Agriculture, Forest Service, Washington, DC.

Mishler, C. W.
1986 *Born With the River: An Ethnographic History of Alaska's Goodpaster and Big Delta Indians*. Alaska Department of Natural Resources, Division of Geological and Geophysical Surveys Reports, Public Data File 86-14, Fairbanks.

Mobley, C.M., M. Eldridge
1992 Culturally Modified Trees in the Pacific Northwest. *Arctic Anthropology* 29: 91-110

Mobley, C.M., and M. Lewis
2009 Tree-Ring Analysis of Traditional Native Bark-Stripping at Ship Island, Southeast Alaska, USA. *Vegetation History and Archaeobotany* 18: 261-268

Muhs, D.R. and J.R. Budahn,
2006 Geochemical evidence for the origin of late Quaternary loess in central Alaska. *Canadian Journal of Earth Science* 43: 323-337.

Natural Resources Branch
2001 *US Army Alaska Integrated Natural Resources Management Plan 2002-2006, Volume 1 Fort Greely and Donnelly Training Area*. Final Draft.

2002 *U.S. Army Alaska Integrated Natural Resource Management Plan 2002-2006, Volume 3, Fort Wainwright*. Final Draft.

Natural Cooperative Soil Survey
1999 *Soil Survey of Fort Wainwright Area, Alaska.* Report prepared by the United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with Department of the Army, FWA, Alaska Agricultural and Forestry Experiment Station,

Fairbanks Soil and Water Conservation District and the Alaska Soil and water Conservation District. Palmer, Alaska

Neely, R. J.
2001 *Early Mining History: Fort Wainwright and Fort Greely, Alaska.* Center for Environmental Management of Military Lands, Colorado State University, Fort Collins.

2003 *Early Transportation Routes, Fort Wainwright, Alaska*. Center for Environmental Management of Military Lands, Colorado State University, Fort Collins.

Pearson, G.A.
1997 New Evidence for a Nenana-Complex Occupation at the Moose Creek Site, Central Alaska: Preliminary Results of the 1996 Re-excavation. *Current Research in the Pleistocene* 14:72-74.

Péwé, T.L.
1975 Quaternary Geology of Alaska. *U.S. Geological Survey Professional Paper 835*.

Péwé ,T.L., Wahrhaftig, C., and F. Weber.
1966 Geologic Map of the Fairbanks Quadrangle, Alaska. U.S. Geological Society Survey Map I-455.

Potter, B.A.
2004 *Modeling Intersite Variability in Interior Alaska: Overcoming Conceptual Ambiguity Through Pattern Recognition.* Paper presented at the 69th Annual Meeting of the Society for American Archaeology, Montreal, Canada.

Potter, B.A., S.C. Gerlach, A.S. Higgs, and P.M. Bowers
2000 *Final Cultural Resource Survey: Fort Greely, Yukon Training Area (Fort Wainwright), Alaska for the National Missile Defense Program.* For USAR Space and Missile Defense Command, by Northern Land Use Research, Inc. Fairbanks, AK.

Potter, B.A., J.D. Reuther, P.M. Bowers, and C. Gelvin-Reymiller
2008 Little Delta Dune Site: A Late Pleistocene Multi-Component Site in Central Alaska. *Current Research in the Pleistocene* 25: 132-133

Powers, W. R. and J. F. Hoffecker
1989 Late Pleistocene Settlement in the Nenana Valley, Central Alaska. *American Antiquity* 54(2):263-87.

Powers, W. R., R. D. Guthrie and J. F. Hoffecker
1983 *Dry Creek: Archaeology and Paleoecology of a Late Pleistocene Alaskan Hunting Camp*. Report to the National Park Service, Washington D.C.

Price, K.
2004 *The World War II Heritage of Ladd Field, Fairbanks, Alaska.* Center for Environmental Management of Military Lands, Colorado State University, Fort Collins.

Rabich, J. and D. Reger
1978 Archaeological Excavations at the Gerstle River Quarry Site. In *Archaeological Survey Projects 1977. Miscellaneous Publications in History and Archaeology Series* No. 18. Alaska Department of Natural Resources, Division of Parks, Anchorage.

Raymond-Yakoubian, J. and A. Robertson
2005 *Methodology: U.S. Army Alaska 2005 Range Developments, Section 106 Archaeological Inventory and Evaluation, Fort Richardson and Fort Wainwright.* Center for Environmental Management of Military Lands, Colorado State University, Fort Collins.

Reger, D.R.
1977 An Eskimo Site Near Kenai, Alaska. Anthropological Papers of the University of Alaska 18(2): 37-52

Reger, D.R., and G.H. Bacon
1996 Long Lake. *In American Beginnings: The Prehistory and Paleoecology of Beringia.* Pp. 436-438. Ed by F.H. West. University of Chicago Press, Chicago

Reynolds, G.
1983 *Archaeological Reconnaissance of Four Borrow Pits, Fort Wainwright, Alaska.* Corps of Engineers. Anchorage, AK.

1984 *Archaeological Survey of Portions of the Fairbanks Petroleum, Oils, and Lubricants (POL) Terminal, Fort Wainwright, Alaska*.

1985 *Survey of Construction Projects, Fort Wainwright Cantonment.* Manuscript on file at the Office of History and Archaeology, Anchorage, AK.

1996 *Survey of Moose Run Golf Course Expansion, Fort Richardson, Alaska*. Division of Parks and Outdoor Recreation, Anchorage, AK.

Robertson, A.
2003 *Proposed Construction of a Gravel Source and Access Road Located at Fort Wainwright's Donnelly Training Area.* Section 106 Letter sent to SHPO 8-29-03. U.S. Army Garrison Alaska.

2004 *Field Methodology, U.S. Army Alaska, 2004 Range Developments, Section 106 Archaeological Inventory and Evaluation, Fort Richardson and Fort Wainwright.* Center for Environmental Management of Military Lands, Colorado State University, Fort Collins.

Robertson, A.C., S.J. Meitl, D. White, P. Gilbert, and C. Ciancibelli
2009 *Archaeological Survey and Evaluation: Donnelly Training Area, Fort Wainwright, Alaska 2008*. Center for Environmental Management of Military Lands (CEMML), Colorado State University, Ft. Collins, CO and U.S. Army Alaska, Fort Wainwright, Alaska.

Robertson, A., N. Fichter and K. Anderson
2004 *Annual Report: Archaeological Survey and Evaluation, Fort Richardson and Fort Wainwright, 2003.* Center for Environmental Management of Military Lands, Colorado State University, Fort Collins.

Robertson, A., M. Proue, C.K. Paraso, S. Shirar, and P. Gilbert
2008 *Archaeological data recovery for Site XMH-00874, Battle Area Complex (BAX) Mitigation, Donnelly Training Area, Fort Wainwright, Alaska 2007*. Center for Environmental Management of Military Lands (CEMML), Colorado State University, Ft. Collins, CO and U.S. Army Alaska, Fort Wainwright, Alaska.

Robertson, A.C., S.J. Meitl, D. White, P. Gilbert, and C. Ciancibelli
2009 *Archaeological Survey and Evaluation: Donnelly Training Area, Fort Wainwright, Alaska 2008*. Center for Environmental Management of Military Lands (CEMML), Colorado State University, Ft. Collins, CO and U.S. Army Alaska, Fort Wainwright, Alaska.

Shaw, R.
2000 *Historical Properties and Paleontological Resources Survey for the Realignment of the Alaska Railroad Corporation Tracks Across Elmendorf AFB and Fort Richardson, Alaska*. Report by Robert Shaw Enterprises for Tryck Nyman Hayes Inc., for Alaska Railroad Corporation.

Sheppard, W.L.
2001 Archaeological Testing and Survey in the Upper Tanana Region, Alaska

Sheppard, W.L., A.F. Steffian, D.P. Staley, and N.H. Bigelow
1991 *Late Holocene Occupations at the Terrace Site, Tok, Alaska.* Final Report. Prepared for U.S. Air Force Over-the–Horizon Backscatter Radar Program, Fairbanks.

1995 Rifles, Blankets, and Beads: Identity, History, and the Northern Athabaskan Potlatch. Norman: University of Oklahoma Press.

Sheppard, W.L., A.F. Steffian, D.P. Staley, and N.H. Bigelow
1991 *Late Holocene Occupations at the Terrace Site, Tok, Alaska. Final Report.* Prepared for U.S. Air Force Over-the-Horizon Backscatter Radar Program, Fairbanks.

Shinkwin. A. D.
1979 *Dakah De'nin's Village and the Dixthada Site: a Contribution to Northern Alaskan Prehistory.* National Museum of Man Mercury Series No. 91.

Shinkwin, A.D. and J.S. Aigner
1979 *Historic and Prehistoric Land Use in the Upper Tanana Valley: Report on the Archaeological Survey Along the Alaska Highway Pipeline from Delta Junction to the Yukon Border.* Final Report. Prepared for Northwest Pipeline Company. Prepared by the University of Alaska Fairbanks.

Simeone, W.E.
1982 *A History of Alaskan Athabaskans: including a description of Athabaskan Culture and historical narrative, 1785-1971.* Alaska Historical Commission, Anchorage.

1995 *Rifles, Blankets, and Beads: Identity, History, and the Northern Athabaskan Potlatch.* University of Oklahoma Press, Norman.

Slobodin, N, and R.J. Speakman
2008 *XRF Characterization of Obsidian from U.S. Army Training Lands, Alaska.* Report prepared for the Center for Environmental Management of Military Lands (CEMML)

Staley, D. P.
1993 *A Phase I Cultural Resource Survey of 19 Locations for the Proposed Yukon Measurement and Debriefing System in Interior Alaska*. Final Report. Prepared by Mariah Associates, Inc. Albuquerque.

Steele, J.
1982 A*rcheological Assessment of Proposed Range Control Headquarters Building, Fort Wainwright, Alaska.* Manuscript on file at the U.S. Army Corps of Engineers, Alaska District.

1983 *Cultural Resource Assessment of Proposed Borrow Area, Fort Wainwright, Alaska.* Manuscript on file ant the U.S. Army Corps of Engineers, Alaska District.

Stryd A.H., and M. Eldridge
1993 CMT Archaeology in British Columbia: the Mears Island Studies. *BC Studies* 99: 184-234

Townsend, J.
1975 Alaskan Natives and the Russian-American Company: Variations in Relationships. In Proceedings of the Second Congress of Canadian Ethnology Society, Vol. 2, pp. 555-570. Ed. By Jim Freedman and Jerome Barkow. National Museum of Man. Mercury Series. Canadian Ethnology Service Paper No. 28, Ottawa

VanStone, J. W. and I. Goddard
1981 Territorial Groups of West-Central Alaska Before 1898. In *Handbook of North American Indians, Vol. 6: Subarctic*, edited by J. Helm, pp. 556-561. Smithsonian Institution, Washington, D.C

Viereck, L.A. and E.L.Little Jr.,
1972 *Alaska Trees and Shrubs.* U.S. Department of Agriculture, Forest Service, Handbook No. 410.

Waddell, Karen.
2003 *Cold War Historical Context 1951-1991 Fort Richardson, Alaska: United States Army Alaska*. Center for Environmental Management of Military Lands, Colorado State University.

2000 *Cold War Resources Inventory: United States Army Alaska*. Center for Ecological Management of Military Lands, Colorado State University.

Wahrhaftig, C.
1965 *Physiographic Divisions of Alaska*. Professional Paper 482. U.S. Department of Interior, Geological Survey, Washington, D.C.

West, F. H.
1967 The Donnelly Ridge Site and the Definition of an Early Core and Blade Complex in Central Alaska. In *American Antiquity* 32 (2): 360-382.

1975 Dating the Denali Complex. In *Arctic Anthropology* 12:76-81.

1981 *The Archaeology of Beringia*. New York: Columbia Press.

Workman, W. R.
1978 *Prehistory of the Aishishik-Kluane Area, Southwest Yukon Territory*. Mercury Series Paper No. 74. Ottawa: National Museum of Man.

Yarborough, L. F.
1975 *Archaeology in the Delta Land Management Planning Study Area. Final Report*. Prepared for the Alaska Division of Parks, Anchorage.

1978 *Chena River Lakes Project Cultural Resource Investigation. Final Report.* Prepared for the U.S. Army Corps of Engineers, Alaska District.

Yaw Davis, N.
1994 *Draft Report—Ethnohistoric Land Use Patterns: Elmendorf Air Force Base (Knik Arm) Area, Alaska.* Prepared for the National Park Service and Elmendorf Air Force Base by Cultural Dynamics, Anchorage, AK.

Yesner, D. R., C. E. Holmes and G. Pearson
1999 *Recent Excavations at the Broken Mammoth Site, Big Delta, Alaska: Reflections on Activity Patterning and Artifact Assemblages*. Paper Presented at the 64th Annual Meeting of the Society of American Archaeology, Chicago.

APPENDIX 1: Obsidian Analysis

Obsidian is an exotic lithic material, the particular characteristics of which allow for chemical source determinations. During May 2009, USAG FWA submitted six samples from four separate sites (FAI-00197; FAI-02001; FAI-02025; FAI-02029;) for source analyses. Analyses consisted of X-ray fluorescence (XRF) spectrometer (for a full discussion of the methods employed see Slobodin and Speakman 2008). The analyses were conducted at the University of Alaska Museum of the North by Chris Houlette.

Table 36. Obsidian source characterization 2009

AOD_Number	Site Number (AHRS)	Catalog Number	K	Mn	Fe	Zn	Ga	Th	Rb	Sr	Y	Zr	Nb	Source_Provisional
AOD-06573	FAI-00197	FAI-00197 1	41518	520	5012	17	19	27	183	4	38	91	23	Batza Tena
AOD-06574	FAI-00197	FAI-00197 2	36002	331	7503	15	15	13	93	81	22	134	10	Wiki Peak
AOD-06575	FAI-02001	FAI-02001 1	55139	590	5497	29	22	33	202	3	36	90	23	Batza Tena
AOD-06576	FAI-02025	FAI-02025 1	54936	504	6229	19	19	24	183	8	31	95	18	Batza Tena
AOD-06577	FAI-02029	FAI-02029 1	55418	460	6272	28	20	27	184	9	29	92	18	Batza Tena
AOD-06578	FAI-02029	FAI-02029 2	55419	554	6936	36	21	29	201	5	34	93	22	Batza Tena